AMERICAN SOCIETY FOR TESTING MATERIALS

BULLETIN

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Symposia on Lubricants and Corrosion Testing to Feature 1937 Regional Meeting

Committee Week and Regional Meeting to Be in Chicago During Week of March 1-5

THE 1937 Regional Meeting which is to be held at The Palmer House in Chicago during the week of March 1 will be featured by a Symposium on Lubricants and a Symposium on Corrosion Testing. Each of these symposiums will comprise technical papers by outstanding authorities in the respective fields.

Throughout the week beginning Monday, March 1, and extending through Friday, March 5, there will be in progress the Spring Group Meetings of A.S.T.M. Committees.

This is the first regional meeting to be held in Chicago. Members will recall that the annual meetings were held there in 1931 and 1933 and several very successful local meetings have taken place.

General arrangements for the 1937 meeting will be in the charge of the Chicago District Committee headed by W. A. Straw, Western Electric Co., with C. E. Ambelang, Public Service Co. of Northern Illinois, secretary. D. L. Colwell, Stewart Die Casting Corp., is chairman of the subcommittee on meetings and programs and A. M. Steever, Columbia Tool Steel Co., is chairman of the subcommittee on publicity and entertainment.

The tentative plans call for a morning and afternoon session on March 3 devoted to the Symposium on Motor Lubricants with the Regional Meeting Dinner on Wednesday evening. The time for the Symposium on Corrosion has not yet been definitely fixed.

LUBRICANTS SYMPOSIUM

The Symposium on Lubricants is being sponsored by Committee D-2 on Petroleum Products and Lubricants and the Executive Committee of Technical Committee B on Motor Oils is in direct charge of the arrangements for the symposium, with H. C. Mougey, General Motors Corp., chairman. Committee D-2 sponsored a Symposium on Motor Lubricants at the 1933 Regional Meeting in New York. The sessions in which the papers were presented were well attended—there was spirited discussion and much interest was evidenced in the subject. It is anticipated that because of the developments in various phases of the subject since that time the 1937 symposium will be an outstanding one.

T. A. Rogers, Standard Oil Co. (Indiana) is serving on the committee as the representative of the Chicago District Group, and Dr. R. P. Anderson, secretary of Committee D-2 and Dr. J. B. Rather, Socony-Vacuum Oil Co., Inc., are acting as representatives of the main committee on the symposium committee. As a result of several meetings and considerable discussion and correspondence, the program has been developed to comprise four technical papers.

The first paper on "Engine Deposits—Causes and Effects" will be presented by Dr. W. A. Gruse, Senior Fellow, Mellon Institute of Industrial Research. This will cover sludge (both high-temperature sludge and low-temperature sludge), ring sticking and other oil deposits formed in the engine. A. J. Underwood, Assistant Head of the Power Plant Dept., General Motors Corp., Research Laboratories Section, in the second paper will cover the subject—"Automotive Bearings —Effect of Design and Composition on Lubrication."

The third paper which is to be given by Dr. G. M. Maverick, Standard Oil Co. of New Jersey, will deal with "Addition Agents for Lubricating Oils," including such materials as pour point depressors, viscosity index modifiers, oiliness addition agents, oxidation inhibitors, etc. The concluding paper of the symposium is to be a very brief summary of the papers given at the symposium in 1933 and of the three papers above mentioned, using this brief summary as an introduction to a paper on the subject, "How to Select a Motor Oil From the Standpoint of the Consumer." The author of this paper is to be Dr. W. S. James, Chief Engineer, Studebaker Corp.

It is proposed to have the papers by Messrs. Gruse and Underwood in the morning session and those by Messrs. Maverick and James in the afternoon session. The com-

mittee in charge is planning to have prepared discussion of each paper presented by selected authorities.

SYMPOSIUM ON CORROSION TESTING

For some time there has been discussion in Committees A-5 on Corrosion of Iron and Steel and B-3 on Corrosion of Non-Ferrous Metals and Alloys on the matter of the Society taking some steps in the direction of standardization of methods of corrosion testing. This discussion led to the appointment of a joint committee consisting of Dr. F. N. Speller, National Tube Co. and L. W. Hopkins, American Chain Co., representing Committee A-5; and R. J. McKay, The International Nickel Co., Inc. and C. L. Hippensteel, Bell Telephone Labs., Inc., representing Committee B-3. Doctor Speller is serving as chairman of this joint committee. After consideration of the various problems, the committee concluded that an excellent preliminary step would be the preparation of a detailed technical paper or a symposium covering all important phases of corrosion testing including tests in the laboratory and in service. A Symposium on Corrosion Testing to feature the 1937 Regional Meeting is the result of the committee's considerations.

It is planned that there will be an introductory paper on the underlying principles of testing, to be followed by other papers dealing with tests under gaseous, immersion and soil conditions. Tentatively it is planned to have joint authors representing both the ferrous and non-ferrous metals industries for the respective papers and written discussions will be invited from those who have made a study of the special phases of this problem.

Further details concerning this symposium and the Symposium on Lubricants will appear in the January BULLETIN. Tentative plans provide for advance distribution of the papers in both symposiums, as preprints or in other form.

COMMITTEE WEEK

It is anticipated that a large number of the Society's standing committees and their subgroups will meet during Committee Week from Monday, March 1 through Friday, March 5. One of the committees, D-19 on Water for Industrial Uses, is planning to have a round-table discussion at its sessions on the classification of waters with respect to their corrosive properties and to their tendency to form deposits.

Further information on room reservations, committees which are participating in Committee Week, and other related information will be given in the January BULLETIN and in announcements going to the members of the respective committees which will hold meetings.

Second International Bridge Congress

THE Second Congress of the International Association for Bridge and Structural Engineering was held in Berlin, Germany, on October 1 and concluded in Munich, October 11. This association, which was organized about eight years ago and held its first congress in Paris in 1932, provides an international forum for the interchange of views and experiences and a basis for cooperative action in the field of bridge and structural engineering.

The total attendance at the second congress was about 1100 which included 600 from Germany and about 500 from other countries. The A.S.T.M. was officially represented at the congress by Mr. E. E. Howard, of the firm of Ash-Howard-Needles & Tammen, Consulting Engineers, Kansas City, Mo. Mr. Howard reported that there were nine working meetings in Berlin for presentation of papers and discussions and a number of excursions and special trips were arranged.

The papers and discussions were grouped under eight principal general themes. Theme 1, covered by nine principal papers and discussions, dealt with design of steel structures with considerable attention to statically indeterminate systems and to theories of plasticity. Theme 2 and Theme 4 concerned similar considerations in relation to concrete and reinforced concrete and were covered by twenty principal papers. Theme 3 and Theme 5 dealt with design, practice, and research in connection with welded girders and trusses and in addition to twenty-one principal papers included brief discussions of experience with welded structures in fourteen different countries. Themes 6 and 7 dealt with hydraulic structures of concrete and of steel, with nineteen principal papers; and Theme 8 was soil mechanics with four main papers. In addition to these there was a very considerable number of miscellaneous papers and presentation of collateral matters. The complete proceedings of the congress will be printed and available in each of the three languages.

In connection with the work of this international association, the Society has just received a copy of Vol. 4 of its publications. This volume contains 29 technical papers, many of these dealing with themes treated at the Berlin Congress. The papers are printed either in English, French or German and the titles, summaries and figure captions are given in all three languages. Copies of this 651-page publication in heavy paper cover can be obtained from the publishers, Verlag AG. Gebr. Leemann & Co., Zurich 2, Stockerstrasse 64, Switzerland, for 30 Swiss francs.

KAUFMAN AND FABRY

Chicago Skyline

Atmospheric Corrosion Tests on Wire and Wire Products Are Under Way

Eleven Thousand Test Specimens in the Country-Wide Test Program

IN THE country-wide series of atmospheric corrosion tests of wire and wire products, being carried out by the Society, with Committee A-5 on Corrosion of Iron and Steel in direct charge of the work, there are almost eleven thousand (10,886 to be exact) test specimens involved. The specimens of plain unfabricated wire, barbed wire, wire strand, farm fence, and chain-link fence have been assembled at several of the eleven test sites and the remainder will be completed within the next few weeks. There are involved in the tests about six miles of plain wire, over a mile of barbed wire, about one-half mile of strand, about two miles of farm fence and one-third mile of chain-link fence.

This vast research program has two major objectives: (1) to obtain essential engineering information concerning the materials involved and (2) to assist in establishing national standard specifications for fencing, barbed wire and other products which will afford consumers an adequate guide in purchasing the materials.

In the absence of adequate artificial or accelerated tests for examining metallic coatings for merit in service, a knowledge of the field performance of metals and metallic coatings is of the greatest importance to the prospective user and the data from actual field tests are the only source of reliable information on which to base the requirements of specifications.

Economic considerations in general dictate the undertaking of research investigations. The protection of metal against corrosion is one of the biggest problems that faces industry today, both from the technical and economic side. To make the proper decisions in selection of materials and types of coatings that will best meet a given set of conditions, the facts must first of all be established and it is believed that the present investigations will give many of the desired facts. The facts must then be properly interpreted, both by individual engineers for their own specific problems and by the Society from a somewhat more general viewpoint. Then with the facts known and properly interpreted, it will be possible to record the knowledge in the usable form of standard specifications, thus facilitating the economic procurement of metallic-coated products of various types to meet various conditions. Such specifications, as should be true of all such standards, are not to be thought of as fixed and unchangeable, but rather as temporary landings at which to rest, review progress and gather new energy for the further climb towards better things. The development of adequate specifications for metallic coatings is one of the important objectives of the present researches.

The present wire test program has been preceded by extensive long-time atmospheric corrosion studies involving bare (uncoated) iron and steel sheets and metallic coatings on various shapes. The first-named tests, begun in 1916, involved iron and steel sheets of varying composition, and included observation of corrosion in various types of atmosphere (rural, industrial, salt air) and by immersion in various kinds of water (city, mine, saline).[1] These tests so clearly demonstrated the value of long-time corrosion tests, conducted upon a cooperative basis by producer and consumer under the auspices of a neutral, impartial body, that Committee A-5 planned a similar study of metallic coatings—principally of zinc but including also cadmium, aluminum, lead and copper—on (1) iron and steel sheets, (2) shapes, hardware, and tubular goods, and (3) wire and wire products exposed to different types of atmosphere. The first two parts of the investigation were started respectively in 1925 and 1929; the third part is now beginning.

DESCRIPTION OF WIRE TESTS

The program of atmospheric corrosion tests of wire and wire products is a comprehensive one and provides for country-wide testing of wire and wire fence. This is much more extensive than the tests on sheets and hardware and shapes and has required considerably more time for its development. The tests in the general form as now being carried out were first announced and described in the 1934 Report of Committee A-5.[2]

PRODUCTS TESTED

Details are given in Table I, covering base metal, gages of wire and type of fence, weights of coating and number of samples in each class. The products being tested comprise:

1. *Plain, Unfabricated Wire,* bare and with zinc, copper and lead coatings, and stainless steel wire of 18 per cent chromium—8 per cent nickel type and 12-14 per cent chromium composition. Plain steel (low copper) and copper-bearing steel (0.20-0.25 per cent copper) are being tested without coatings, but all zinc-coated wire is of copper-bearing steel. The total number of samples of wire is 120, of which 84 represent zinc-coated wire.

2. *Barbed Wire,* bare and coated with zinc, copper and lead. The total number of samples is 23, of which 19 represent zinc-coated wire.

3. *Strand,* 3/8 in. diameter, made up of seven wires 0.120 in. in diameter, coated with zinc and lead. The total number of samples is 13, of which 12 are zinc-coated.

4. *Farm Fence,* in four types distinguished by varying gages of line and stay wires, comprising bare (no coating), zinc coatings of a wide range of weights, copper and lead coatings; also farm fence of stainless steel. With the exception of one gage of fence wire, the plain wire samples in (1) above include material from the same lots of wire used in the manufacture of the farm fence. The total number of farm fence samples is 72, of which 59 are zinc-coated fence.

5. *Chain Link Fence,* standard type, Nos. 6 and 9 gage wire, with zinc, copper and lead coatings; also stainless steel fence of No. 14 gage wire. Zinc-coated fence includes samples galvanized before and other samples galvanized after weaving. Total number of samples is 21, of which 18 are zinc-coated fence.

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[1] The results of these tests have been fully reported in the annual *Proceedings* from 1916 on. Parts of the investigation are still current—see 1936 Report of Committee A-5, *Proceedings,* Am. Soc. Testing Mats, Vol. 36, Part I.

[2] *Proceedings,* Am. Soc. Testing Mats., Vol. 34, Part I, pp. 167-183 (1934).

MATERIALS AND COATINGS

Materials, and kind and specified weights of coatings for the various products, are given in Table I. Tests of bare plain wire, barbed wire, and farm fence are included. The zinc coatings have been applied by various processes. The range of weight of zinc coatings is from a very light weight, such as 0.20 oz. per sq. ft., up to about 2.5 to 3 oz. per sq. ft. It is to be noted that only comparatively recently has it been commercially possible to apply relatively heavy coatings of zinc on wire that would successfully withstand fabrication operations, and the present series of tests is believed to be the first comprehensive field study of such coatings.

The samples of copper-clad, lead-clad, and stainless-steel wire and fencing will give valuable comparative data.

TEST SITES

Eleven test sites in all have been chosen. As noted in Table II, eight are being provided by the agricultural experiment stations of seven universities which are furnishing these sites (approximately 100 by 200 ft.) without charge for a period of twenty years, enclosing them, providing labor and accessory materials for erection of the samples, keeping the site in good condition, and providing the services of a resident engineer who will participate in the inspections. The American Society of Agricultural Engineers is cooperating.

The products to be exposed at each test site are shown in Table II.

PRODUCTION OF MATERIALS

The magnitude of this program may be seen from Table III. These materials have been furnished by a total of fourteen manufacturers without charge, to the committee's specifications as to base metal, gages of wire, kinds and weights of coating, and other provisions, using regular commercial manufacturing practices. The weight-of-coating ranges have been arbitrarily chosen and purposely held to close limitations and do not necessarily individually represent any manufacturer's commercial product. On the other hand, the entire range of coatings covered by all weight groups as a whole are designed to include a sufficient range of coating weight to furnish the useful corrosion resistance data desired and permit the selection of the most economical weight of coating for a given service condition.

PROCEDURE

The methods of collecting, testing, marking and shipping of the samples to the test sites are so designed that the identity of the producer of a particular sample shall always remain unknown. This step has been considered essential to the success of the tests, since they are designed to yield data evaluating only such factors as kind and weight of coating, base metal, gage of wire, etc. By so doing, the committee avoids the testing of commercial brands of fabricated wire products, as such.

Placing of specimens at the sites is now under way. All fencing and barbed wire will be erected in accordance with standard practice. Strand will be strung between suitable supports. Plain wire will be cut to individual specimens about 3 1/3 ft. long, which are welded to rectangular metal frames holding 16 to 30 such specimens. In order to permit periodic strength tests, seven duplicate specimens of each sample, requiring a total of 35 frames, are provided at each site. Provision is also made for four periodic weight tests of wire specimens exposed at three sites.[3]

INITIAL TESTS OF SAMPLES

The following tests will be made on samples taken from all material as received:

Base Metal.—Complete chemical analysis; determinations of tensile strength and percentage of elongation (each value reported is the average of three determinations).

Coatings.—Weight and uniformity of coating; determination of microstructure; wrap test for adherence and ductility of coating.

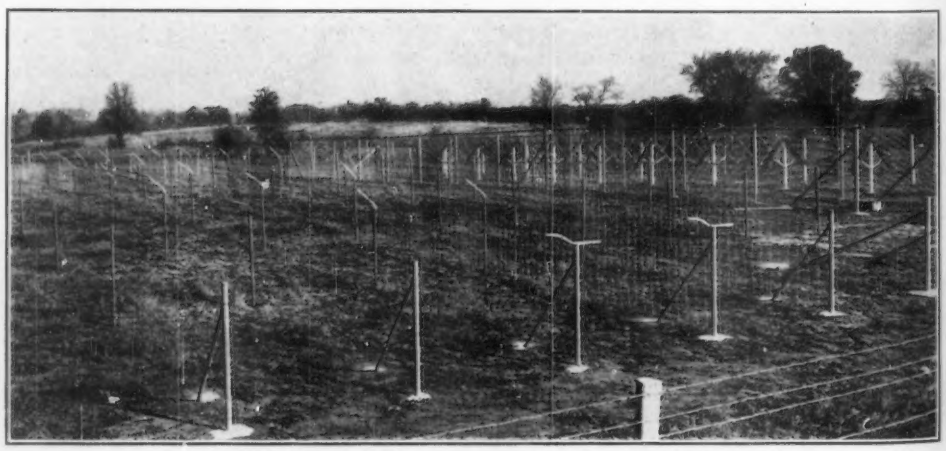
These extensive tests, which it is planned to have made at the National Bureau of Standards, will determine the original properties of the materials being tested, which will be published as the initial ratings.

PERIODIC INSPECTIONS AND TESTS

Inspection of the test material will be made by an inspection committee of men experienced in this type of work, whose services and expenses are contributed to the Society. All samples will be periodically rated for their resistance to corrosion. The plain unfabricated wire will be tested at seven periods (the time depending upon the rate of corrosion of individual wires) for effect of corrosion upon tensile strength and ductility. For this purpose, the wires have been so selected (bare and light-coated wires on one frame and the longer-lived wires on other frames) that one or more frames may be returned from the site to the testing laboratory where the wires can be cut off and tested. The length of the wires (3 1/3 ft.) is sufficient to permit three tension tests from each specimen.

In addition to the tests for tensile strength and ductility, special frames are being installed to permit determination of the effect of the gage of the wire on the rate of loss of zinc. These tests have been considered necessary since earlier observations have indicated that the rate of loss of zinc is con-

[3] For detail description and drawings showing methods of erecting samples, see 1934 Report of Committee A-5.



Test Field at Lafayette, Ind., (Purdue University)

Table I.—Materials and Coatings

Base Metal	Gages of Wire	Kind of Coating	Specified Weights of Coating, oz. per sq. ft.	Number of Samples
1. PLAIN, UNFABRICATED WIRE				
Plain steel (low copper)	6, 9, 11, 12½, 14	none	.....	10
Copper bearing steel	6, 9, 11, 12½, 14	none	.....	10
Copper bearing steel	6, 9, 11	zinc	0.25-0.35, 0.45-0.55, 0.60-0.70, 0.80-1.00, 1.2-1.5, 1.60-1.80, 2.40-3.00	53[1]
Copper bearing steel	12½, 14	zinc	0.20-0.30, 0.35-0.45, 0.50-0.60, 0.70-0.85, 1.60-1.80	31[1]
			Total Samples—Bare and Galvanized Wire	104
Steel	0.120 and 0.148 in. diameter	copper	Not specified	2
Copper-bearing steel	6, 9, 11, 14½	lead	Not specified	4
Stainless steel:				
18-8 (Tens. str. 300,000 lb. per sq. in.)	12, 15, 20	none	.....	4
12-14 per cent Cr. (Tens. str. 140,000 lb. per sq. in.)	9, 12, 17	none	.....	3
12-14 per cent Cr. (Tens. str. 175,000 lb. per sq. in.)	10, 13, 18	none	.....	3
			Total Samples—Stainless Steel Wire	10
			Grand Total—Plain Wire Samples	120
2. BARBED WIRE All line wire 12½ gage—barb 14 gage				
Copper bearing steel		none	.....	2
Copper bearing steel		zinc	0.20-0.30, 0.35-0.45, 0.50-0.60, 0.70-0.85, 0.85-1.00, 1.60+	19
Steel		copper	Not specified	1
Copper bearing steel		lead	Not specified	1
			Total Barbed Wire Samples	23
3. STRAND All strand is ⅜ in. diameter, consists of seven 0.120 in. diameter wires				
Siemens-Martin steel		zinc	0.80-0.95, 1.0-1.2, 1.3-1.5, 1.6-1.8, 2.4-2.6	12
Copper bearing steel		lead	Not specified	1
			Total Strand Samples	13
4. FARM FENCE[2]				
Copper bearing steel	1, 2, 3, 4	none	.....	8
Copper bearing steel	1, 2, 3, 4	zinc	Ranging in four to six weights of coating from 0.20 to 3.00	59
			Total Samples of Bare and Galvanized Fence	67
Steel	.....	copper	Not specified	1
Copper bearing steel	.....	lead	Not specified	1
Stainless steel:				
18-8 type; 12-14 per cent Cr	.....	none	.....	3
			Total Samples—Farm Fence	72
5. CHAIN LINK FENCE				
Copper bearing steel	Nos. 6 and 9 gage	zinc	Ranging from under 0.50 to 3.00	18
Steel	.....	copper	Not specified	1
Copper bearing steel	No. 9 gage	lead	Not specified	1
Stainless steel: 18-8 type	No. 14 gage	none	.....	1
			Total Samples—Chain Link Fence	21

[1] One sample chromate-treated.

[2] Bare and galvanized farm fence is in four types, varying in gages of line and stay wires from Nos. 9 to 14½.

Table II.—Materials Exposed at Test Locations

LOCATION OF TEST SITE	Plain Wire	Barbed Wire	Strand	Farm Fence	Chain Link Fence
1. Bridgeport, Conn.	x	..	x	*	x
2. Sandy Hook, N. J.	x	..	x	..	x
3. Pittsburgh, Pa.	x	..	x	..	x
4. Ithaca, N. Y. (Cornell University)	x	x	x	x	x
5. State College, Pa. (Pa. State College)	x	x	x	x	x
6. Lafayette, Ind. (Purdue University)	x	x	x	x	x
7. Ames, Iowa (Iowa State College)	x	x	x	x	..
8. Manhattan, Kansas (Kansas State College)	x	x	x	x	..
9. College Station, Texas (Agr. & Mech. College)	x	x	x	x	..
10. Davis, Calif. (University of Calif.)	x	x	x	x	x
11. Santa Cruz, Calif. (University of Calif.)	x	x	x	x	x
Total	11	8	11	8	8

* Three samples of stainless steel farm fence at Bridgeport.

siderably more for a wire than for a flat sheet. The wires on these frames will be very accurately weighed before welding to the frames, and then reweighed at stated intervals to determine weight loss per unit length.

SIGNIFICANCE OF TESTS

For years there has been a demand for acceptable standard specifications for metallic coatings of such products as are included in the A.S.T.M. atmospheric corrosion tests, but adequate reliable data upon which to prepare such specifications have been lacking. This, in a word, was the primary need that led to the inauguration of the present extensive field tests.

There has been observed a pronounced leaning towards the theory that the region in which a metallic coating is exposed is of much greater importance than slight differences in the protective value of coatings, and it has been concluded that the greatest value per dollar expended in corrosion work by the Society can be obtained from actual outdoor exposure in a wide variety of locations. The A.S.T.M. is in a peculiarly advantageous position to conduct investigations of this type, involving exposure for many years of identical samples at widely separated locations, continuous supervision of the tests, and responsibility for recording the data, drawing fair and unbiased conclusions and publishing current and final reports.

TABLE III.—QUANTITIES OF MATERIALS EXPOSED

1. *Plain, Unfabricated Wire*
   All wire cut to individual specimens 3 1/3 ft. long, mounted on frames in sufficient quantity to provide tension tests at seven periods from 11 sites and weight tests (of certain galvanized wires only) at four periods from 3 sites. Over 400 frames used.
   120 samples x 11 sites x 7 test periods = *9240 tension specimens*
   Tension tests in triplicate = 27,720 tests
   9 samples x 4 duplicates x 3 sites x 4 test periods = *432 weight specimens*
   Total length of wire exposed: 9672 x 3 1/3 ft. = 32,240 ft. (slightly over 6 miles)
2. *Barbed Wire*
   Each specimen 33 ft. long
   23 samples x 8 sites = *184 specimens* x 33 ft. = 6072 ft. *(1.15* miles)
3. *Strand*
   13 samples exposed in duplicate, each specimen 10 2/3 ft. long
   13 samples x 2 x 11 sites = *286 specimens* x 10 2/3 ft. = 3051 ft. (0.58 mile)
4. *Farm Fence*
   Each specimen 16½ ft. long
   72 samples x 8 sites = *576 specimens* x 16½ ft. = 9504 ft. (1.80 miles)
5. *Chain Link Fence*
   Each specimen 10 ft. long
   21 samples x 8 sites = *168 specimens* x 10 ft. = 1680 ft. (.318 mile)

It is anticipated that these tests will give reliable information on such questions as the following:

> Does a particular metal or a particular coating have superior resistance to atmospheric corrosion?
>
> What is the relative performance, expressed quantitatively, of different metals and metallic coatings in different locations?
>
> What is the relation between thickness of metallic coating and its service life in different locations?
>
> What is the effect, if any, of the method of applying coatings, the purity of the coating and its continuity, on the protection afforded against corrosion?

Some of these questions are already being answered in the tests of metallic-coated sheets and hardware, but only partly so; it is clear that the tests have not run long enough to determine the life of some of the coatings satisfactorily. The tests on wire and wire products, which are probably the only systematically planned ones in this country covering such a wide range of coatings and exposure conditions, will not only give much needed information on these products *per se* but also valuable supplementary information which in conjunction with the data on sheets and hardware should give a well-rounded knowledge of the corrosion-resistant properties of metallic coatings.

Personnel.—A special committee was appointed to institute the wire test program. This committee, the personnel of which follows, planned the tests and arranged for the preparation and collection of the specimens and the tests of the samples which will be published as the initial ratings.

F. F. Farnsworth, *Chairman,* Bell Telephone Laboratories, Inc.
A. P. S. Bellis, J. A. Roebling's Sons Co.
J. D. Conover, American Zinc Inst., Inc.
F. M. Crapo, Indiana Steel and Wire Co.
F. C. Elder, American Steel and Wire Co.
W. H. Finkeldey, Singmaster & Breyer
W. M. Floto, American Steel and Wire Co.
H. F. Hanks, Pittsburgh Steel Co.
H. W. Riley, Dept. of Agricultural Engineering, Cornell University
H. E. Smith, Consulting Engineer
R. U. Blasingame, Dept. of Agricultural Engineering, Pennsylvania State College

C. L. Warwick is director of the tests and H. E. Smith is assistant director of tests and in charge of the assembly and erection of the test racks.

An inspection committee is to be appointed to superintend the periodic observations of the specimens and correlate the data obtained.

1936 Book of A.S.T.M. Standards Completed

WORK has been completed on the 1936 edition of the Book of A.S.T.M. Standards and copies have been distributed to members and those who have ordered copies. The latest edition of this very extensive publication was again issued in two parts—Part I giving all A.S.T.M. standards relating to metals, and Part II, all of the standard specifications, test methods, definitions, etc., covering non-metallic materials.

Each member is furnished a copy of either part of the book without charge and can obtain both parts on the added payment of $2. Most of the members take advantage of this latter provision so that they will have both parts in their files. Extra copies of the book can be purchased at the special members' price of $5 per part, both parts, $9. The price to non-members is $7.50 per part, $14 both parts, in blue cloth binding.

The practice followed in the past of publishing in special Supplements the standards adopted in the years between publication of the Book of Standards will be adhered to. The 1937 and 1938 Supplements will be sent without charge to each member and all purchasers of the 1936 Book of Standards.

PART I—METALS

Of the 181 standards in Part I of the Book of Standards, 109 cover ferrous metals, steel, wrought iron, pig iron, iron castings and ferro-alloys, while 60 relate to non-ferrous metals, aluminum and aluminum alloys, copper and copper alloys, lead, zinc, etc. Twelve of the standards in Part I involve metallography, and general testing procedures, involving radiographic testing and hardness and tension testing are included. During 1936, a number of new standards were adopted relating to various types of iron and steel and non-ferrous metals products, and these are given in their latest approved form in this volume. Part I has over 900 pages.

PART II—NON-METALLIC MATERIALS

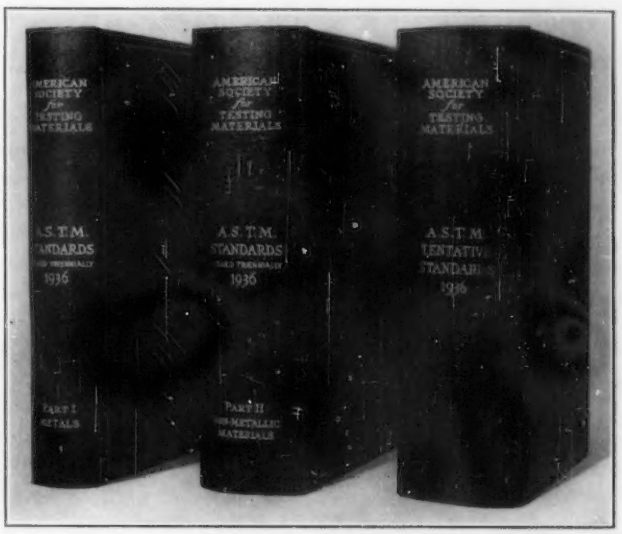
There are included in Part II—Non-Metallic Materials—335 standard specifications, test methods and definitions covering many widely used materials such as cement, gypsum, concrete, coal, paints, petroleum products, rubber products and textile materials, etc. As with Part I, there are a large number of new standards included in this part for the first time, these standards having been adopted during the current year. All of the standards in which revisions were approved during 1936 are given in their latest correct form. Part II comprises over 1500 pages.

ONE OF MOST IMPORTANT BOOKS

Without doubt the Book of A.S.T.M. Standards is one of the most widely used and is probably the most important publication in the engineering materials field. The standards incorporated in it are part of the agreements for the purchase of millions of dollars' worth of engineering materials each year. Many of the standards given are referred to in leading building codes. The building code sponsored by the Pacific Coast Building Officials' Conference, for instance, includes some 42 standards; the building code recently adopted by the city of Cincinnati has some 27 A.S.T.M. specifications and tests; and the new city of Miami code refers to 26 Society standards.

Aside from the practical value and utility of this important book, it is tangible evidence of the immense amount of work devoted to standardization by the standing committees of the Society, and not only every committee, but every member of the Society has contributed definitely to its publication. He should take justifiable pride in its possession. The increased number of standards included in each issue every three years is truly representative of A.S.T.M. standardization progress in which each member has done his share.

In the 1936 edition the standards covering related materials are in groups and a further classification is made by giving the specifications for a material first, followed directly by methods of testing. A complete subject index is included in each part of the book and two tables of contents are designed to facilitate ready references to any standard. One of these lists the standards under the general classes of materials covered, and the other gives the complete title of each standard in the order of numeric sequence of the serial designations.



Books of Standards and Tentative Standards

1936 Book of Tentative Standards

THE 1936 Book of A.S.T.M. Tentative Standards has just been published and distribution will shortly be under way to those who have ordered copies. This volume comprises 1392 pages and gives in their latest approved form all of the A.S.T.M. tentative specifications, test methods, etc., with the exception of the tentative methods of chemical analysis of metals which are being issued in a special compilation. There are 265 specifications and test methods included in the latest edition of this widely used book.

What makes the publication of special significance and value is the fact that it provides a compilation of the new tentative standards first approved and published this year and includes as well those which were approved in previous years.

Copies of the 1936 Book of Tentative Standards are available to members at the special prices of $4.50 in heavy paper binding, $5.50 in cloth binding. Non-members' prices are $7 and $8 respectively.

A. S. T. M. BULLETIN

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Papers and Discussion for the Bulletin

DURING the past year the A.S.T.M. BULLETIN has included several papers of a technical nature and other special articles and features have been included. These items have resulted in a more extensive BULLETIN (many more pages of text appear in the six 1936 numbers than for any other year)—and their use is in conformity with the policy of the Committee on Papers and Publications which contemplates a gradual expansion of the BULLETIN to make it of maximum benefit to the members.

Recently a Committee on the A.S.T.M. BULLETIN was appointed, consisting of W. E. Emley, National Bureau of Standards, chairman; C. L. Hippensteel, Bell Telephone Laboratories, Inc., and J. C. Pearson, Lehigh Portland Cement Co. The committee has decided to plan for a further enlargement and has developed a list of types of papers which will be eligible for BULLETIN publication. The following classifications are not intended to cover all items which may be offered and papers in other categories will be considered:

(a) Papers of a non-technical nature, dealing with matters within the field of the Society, and of current interest;

(b) Papers describing exploratory research which has not progressed to the point where publication of a technical report in the *Proceedings* is justified;

(c) Papers describing a new application of an established test method or technical description of a new testing instrument;

(d) Papers offered for publication in the BULLETIN by any of the standing committees for the purpose of eliciting discussion more expeditiously and with greater continuity than can be obtained from annual publication.

It is believed that there are a number of members and others who frequently develop papers falling in the above classifications and that there are numerous other cases where papers would be offered if there were a less formal medium than the *Proceedings* for their publication. Members of the Society and others who may wish to do so can now submit papers of the general nature indicated above. They should be sent to A.S.T.M. Headquarters.

The attention of all members is also directed to the fact that the pages of the BULLETIN are available for discussions or comments concerning A.S.T.M. specifications and test methods or discussion of technical papers. Such articles would presumably take the form of a letter to the editor and the Committee is desirous that this type of contribution be developed.

District Committee Meetings and New Members

WITH the coming of the season for District Committee meetings of our Society, your President is tempted to call attention to their importance in spreading knowledge of and in securing new members for the A.S.T.M.

Most of our members belong to one or more professional, technical, or scientific societies. Attendance at the local section meetings of these organizations imposes no inconsiderable demand on the time of our members. The A.S.T.M. recognizing this situation has refrained from developing the local section plan of organization. However, the need of some degree of local organization in our larger cities became evident some years ago, and the District Committees of New York, Philadelphia, Cleveland, Detroit, Chicago, Pittsburgh, Northern California, and Southern California were created to supply this need.

District Committees have been of great service in arranging annual and regional meetings, as well as a winter or spring meeting in each district. Due to the close relationship of A.S.T.M. work with the interests of other technical, professional, and trade organizations, District Committees have found it most appropriate to have joint meetings with local sections of some of these other organizations for the discussion of some subject of mutual interest in their particular district: as for example, the Symposium on Industrial Fuels held last January under the joint sponsorship of the Engineers Club of Philadelphia and the A.S.T.M. Philadelphia District Committee. Similar successful District Committee meetings were held last year in Cleveland with the American Foundrymen's Association, in Chicago with the American Society for Metals, and in Detroit with the Society of Automotive Engineers and the American Society for Metals. The most recent joint meeting, sponsored by the Northern California District Committee and the Purchasing Agents' Association, was discussed in the October BULLETIN.

Thoughtful planning and widespread advertising of such meetings or symposia in such a manner as to bring about a large attendance of those who are interested in specifications and testing of engineering materials are bound to result in obtaining new members for our Society. Special efforts should be made to invite young men who are just beginning their work as analytical chemists and testing engineers. Membership in the A.S.T.M., and participation in committee work, will help them to advance in their professions, and they are the material on which the Society must depend for its growth.

The continued increase of industrial activity augurs well for a successful series of District Committee Meetings, and I trust that each District will return a goodly list of new accessions to the membership roll of the A.S.T.M.

A. C. Fieldner

President

Papers by American Authors at I.A.T.M. Meeting

A DETAILED announcement appeared in the October BULLETIN concerning the Second Congress of the International Association for Testing Materials to be held in London, April 19 to 24, 1937, under the auspices of a special committee consisting of the British I.A.T.M. Committee and representatives of many leading British institutions.

Included in the some 150 papers which are scheduled for presentation are a number by leading American technologists, arrangements for the solicitation of these papers having been directed by W. H. Fulweiler who is the American representative on the I.A.T.M. Permanent Committee. A list of papers and authors appears below, the papers being classified according to the respective groups in which they fall.

Group A. Metals

Interpretation and Use of Creep Results—J. J. Kanter, Crane Co.
Mechanism of Creep of Metals—C. L. Clark and A. E. White, University of Michigan.
Creep of Metals—A. Nadai, Westinghouse Electric and Manufacturing Co.
Effect of Temperature on Properties of Metals—Present Trend of Engineering Thought in the U. S.—C. E. MacQuigg, Union Carbide and Carbon Research Laboratories, Inc.
Testing High Endurance Oxidation Resistant Alloys—F. E. Bash, Driver-Harris Co.
Recent Progress in Aluminum Alloys in America—E. H. Dix, Jr., Aluminum Company of America.
Progress in Microscopy—F. F. Lucas, Bell Telephone Labs., Inc.
Cutting of Metals—O. W. Boston, University of Michigan.
Oxide Films as a Protection Against Wear—S. J. Rosenberg, National Bureau of Standards.

Group B. Inorganic Materials

Vibrated Concrete—F. H. Jackson, U. S. Bureau of Public Roads.
Testing of Aggregates for Durability in Concrete—A. T. Goldbeck, National Crushed Stone Assn.
Testing Methods for Crushing Strength and Crossbreaking Strength of Bricks—J. W. McBurney, National Bureau of Standards.
Testing of Electrical Porcelain—L. E. Barringer, General Electric Co.
Development of Heat by Cement—P. H. Bates, National Bureau of Standards.
Volume Changes of Concrete—F. R. McMillan, Portland Cement Assn.
The Testing of Floor and Wall Tiles—G. H. Brown and J. R. Kaufman, Rutgers University.
Present Status of the Testing of Refractory Materials—S. M. Phelps, Mellon Institute of Industrial Research.

Group C. Organic Materials

Methods of Testing Fastness of Dyed Fabrics—W. D. Appel, National Bureau of Standards.
The Structure of Cellulose—H. Dewitt Smith.
Accelerated Aging Tests for Paper, Rubber and Weighted Silk—W. E. Emley, National Bureau of Standards.
The Properties of Built-Up Wooden Beams—Peter Landsem, National Lumber Manufacturers Assn.

Group D. Questions of General Interest

Characteristics of Materials of Construction in the Field of Thermal Insulation—Prof. F. B. Rowley, Director, Institute of Technology, University of Minnesota.
The Present Status of the Measurement of the Sound Absorption Coefficient of Materials—Paul E. Sabine, President, Acoustical Society of America.
Recent Progress in Physics and Chemistry; Their Importance for the Understanding of Materials—W. H. Fulweiler, Consulting Chemist.

Further detailed information concerning the Congress is to be issued and other announcements will appear in future BULLETINS.

Schedule of Meetings

DATE	COMMITTEE	PLACE
January 6-7	D-2 on Petroleum Products and Lubricants	New York City
January 19-20	Executive Committee	Philadelphia
February	E-6 on Papers and Publications	Philadelphia
March 10-12	D-13 on Textile Materials	Providence
March 22	C-8 on Refractories	New York City
January 28	CLEVELAND DISTRICT MEETING	Cleveland
March 1-5	COMMITTEE WEEK	Chicago
March 3	REGIONAL MEETING	Chicago
June 28-July 2	ANNUAL MEETING	New York City

Interesting Meeting to be Held in Cleveland

PLANS are being perfected by the Cleveland District Committee for what promises to be an extremely interesting meeting in the form of a joint session of the local A.S.T.M. members and the Cleveland Section of the American Society of Mechanical Engineers. H. A. Schwartz, chairman of the District Committee, is developing the program which is to be a discussion on the "Making of Specifications." Four prominent speakers will deal with specific phases of this subject. The meeting is scheduled to be held on Thursday, January 28.

J. H. Herron, President of the American Society of Mechanical Engineers and a member of the Cleveland District Committee, will discuss "Specifications in Industry," and Dr. A. C. Fieldner, A.S.T.M. President, will outline the technique by which A.S.T.M. formulates its standard specifications and test methods. Lt.-Col. Pinger of the U. S. Army, will talk about the formulation of specifications by the Government, and H. F. Dodge of the Bell Telephone Laboratories and chairman of the A.S.T.M. Committee on Interpretation and Presentation of Data will discuss the statistical basis for writing specifications.

It is expected that the meeting session will be preceded by a dinner at which the presidents of the two societies will speak briefly.

All members of the A.S.T.M. in the Cleveland District will receive a detailed notice of the meeting.

Pittsburgh Meeting Planned to Discuss Glass

AT a recent meeting of the A.S.T.M. Pittsburgh District Committee, consideration was given to the possibility of holding a meeting of members in the Pittsburgh area, to be featured by technical papers and discussion on the subject of glass. It is anticipated that the section on glass of Committee D-9 on Electrical Insulating Materials will be invited to participate and assist in sponsoring the presentation of the technical discussion. Committee D-9 is planning to hold a series of meetings in Pittsburgh in February or March and since Pittsburgh is a center of the glass industry, this subject should be a particularly pertinent one. Additional consideration is being given to numerous details in connection with the planning of this meeting and further announcements will be made in the BULLETIN.

Progress in Plans for 1937 Annual Meeting in New York

AT RECENT meetings and conferences of officers and members of the New York District Committee, plans have been made for various features of the Society's Fortieth Annual Meeting which is to be held June 28-July 2 at The Waldorf-Astoria. The district committee is being expanded to constitute a committee on arrangements for the meeting and a number of subcommittees are being developed to have charge of various portions of the activities. The officers of the main committee and chairmen of the various subgroups are as follows:

COMMITTEE ON ANNUAL MEETING ARRANGEMENTS

Honorary Chairman, H. S. Vassar, Public Service Electric and Gas Co.
Chairman, M. F. Skinker, Brooklyn Edison Co.
Vice-Chairman, W. H. Finkeldey, Singmaster & Breyer.
Secretary, G. O. Hiers, National Lead Co.

SUBCOMMITTEES AND CHAIRMEN

Entertainment Committee—J. R. Townsend, Bell Telephone Labs., Inc.
Program Committee—R. L. Hallett, National Lead Co.
Finance Committee—K. G. Mackenzie, The Texas Company.
Publicity Committee—E. A. Snyder, Socony-Vacuum Oil Co., Inc.
Exhibit Committee—F. M. Farmer, Electrical Testing Labs.
Membership Committee—J. M. Weiss, Weiss & Downs, Inc.
Ladies Committee—Mrs. William H. Bassett, Jr.

The technical features of the meeting are developing, among these being a Symposium on the Significance of Tests of Coal and Coke to be sponsored by A.S.T.M. Committee D-5 and a Symposium on the Testing of Paint which will be sponsored by Committee D-1 on Paint, Varnish, Lacquer, and Related Products. H. A. Nelson, New Jersey Zinc Co., chairman of Subcommittee VII on Accelerated Tests for Protective Coatings, is in charge of the arrangements for this symposium. A number of technical papers are being considered for the meeting and it is indicated in another portion of this BULLETIN that Committee E-6 on Papers and Publications is desirous that members who wish to offer papers should do so as soon as possible.

During the week of the meeting there will be a number of interesting entertainment features provided for the members. In so far as possible the technical sessions will be held in the morning and afternoon, leaving the evening free for the entertainment features.

EXHIBIT

Almost half of the space in the Fourth A.S.T.M. Exhibit of Testing Apparatus and Related Equipment which will be held in conjunction with the A.S.T.M. annual meeting has already been reserved and every indication points to a most interesting and successful exhibit. Included in the organizations applying for space are many of the leading manufacturers and distributors of testing machines and scientific instruments and laboratory supply companies.

It is expected that several Society committees will sponsor booth displays emphasizing various features of their work.

NEW YORK
The World's Greatest Market Place

New York City contains about 309 square miles. Queens is by far the largest borough, and Manhattan the smallest. The 1930 census indicated a total population of 6,930,446 (3,472,956 males and 3,457,490 females). This was divided as follows:

Bronx	1,265,258	Manhattan	1,867,312
Brooklyn	2,560,401	Queens	1,079,129
Richmond	158,346		

As of 1930, five-sevenths of the population was foreign born, or born in this country with one or more immigrant parents. 2,295,400 were foreign-born whites, including 442,431 Russians; 440,250 Italians; 238,339 Poles; 237,588 Germans and 192,810 from the Irish Free State.

The Port of New York

In large measure New York's greatness arises from its Port of New York, the only one in the world with two deep-water entrances from the sea. About 42 per cent, by value, of the U. S. foreign trade, and 25 per cent by tonnage, travels through it. There are six distinct harbors, each as large as many world ports.

In a single month during a normal business year there were 370 scheduled sailings, including 133 to Northern Europe, 26 to Asiatic ports, 44 to South America, and 113 to West Indian ports.

Across the Lake in Central Park

Corrosion Inspection Group

ON page two of the October BULLETIN, there was a picture of the group at the first inspection in April, 1917, of the atmospheric corrosion test specimens of sheets at Annapolis and a list of those present was given. Through the courtesy of W. J. Woolbridge, Allegheny Steel Co., the name of the gentleman listed as No. 9 has been determined—he is George W. Moore, now with the Portsmouth, Ohio, Works of the Wheeling Steel Corp. and who at the time the picture was taken was Superintendent of Inspection and Tests, Portsmouth Works, Whittaker-Glessner Co. No. 2 in the group, listed as M. Knowles, was Frank M. Knowles, now deceased, who was with the Wheeling Steel Corp. at Portsmouth.

THE WALDORF-ASTORIA

World's Largest Hotel

Although it is the largest hotel in the world as a structure, The Waldorf-Astoria is not the largest in number of rooms. This is due to the fact that, on an average, rooms in The Waldorf-Astoria are larger than corresponding rooms in other hotels of comparable size. The guest rooms have an average size of 9500 cubic feet. There are some 2000 rooms, including 300 residential suites and numerous ballrooms, dining rooms, etc. Leading interior decorators of America, England, France and Sweden collaborated to solve the furnishing problems of unusual magnitude and complexity.

The Main Foyer is in a modern design with classic Pompeiian influence. Walls, columns and doorways are of Rockwood stone. The floor is laid with Travertine stone and Belgian black and rouge-colored terrazzo. The plaster ceiling is decorated in gold and silver leaf. Features of the Main Foyer are the series of paintings by the French artist, Louis Rigal, forming the frieze, and "The Wheel of Life" rug, also designed by Rigal.

This rug is 48 feet square, with a central medallion 18 feet in diameter. In this are six groups of life-sized figures depicting the drama of human existence from birth to old age and death.

Park Avenue Entrance—The Waldorf

New Book on Testing

A NEW book entitled "The Mechanical Testing of Metals and Alloys" has recently been written by P. Field Foster of the University College of South Wales and Monmouthshire, and published by Sir Isaac Pitman & Sons, Ltd., Parker St., London, W. C. 2. This book deals with the theory and practice of standardized mechanical testing, describes modern testing equipment and its use and embraces the theory underwriting present-day developments in the testing of metals and alloys. Copies of the book in cloth binding can be obtained from the publishers at 15 s. net.

Sectional Committee on Cast Iron Pipe

Announcement has been made by the Sectional Committee on Specifications for Cast Iron Pipe of the publication of a "Report of Tests to Determine the Shearing Strength of Steel Anchor Clips Bronze Welded to Cast Iron Pipe," these tests having been made for the committee by the testing laboratories of Columbia University. This bulletin is the third of six being prepared by the committee, these bulletins to cover tests made by six American universities. Previous bulletins have been issued by Ohio State University Engineering Experiment Station and Cornell University. Copies of the latest bulletin can be obtained from the American Water Works Assn., 29 W. 39th St., New York City, at 25 cents per copy.

The committee is organized into three technical committees on dimensions; metallurgy, processes and tests; and corrosion and protective coatings. The first committee is considering thickness schedules for pipe, both pit cast and special types, the schedules giving thicknesses needed throughout the range encountered in practice of not only internal water pressures, but also both different conditions of bedding and backfilling and varying external loads. The Ohio State bulletin covering bell and spigot joints in cast iron water pipe was issued under the direction of this committee.

The committee on metallurgy, processes and tests, has completed much of its work, but is revising specifications for test bars and test specimens which will be sent out for ballot as soon as information on certain details of the provisions is obtained. The work on corrosion and protective coatings has resulted in the drafting of specifications for organic coatings to which further consideration is being given, particularly the inclusion of a new process of coatings recently developed.

Offers of Annual Meeting Papers

IN THE Circular to Members No. 236 which was mailed to each member on December 1, the customary invitation was extended to offer papers for presentation at the 1937 annual meeting in New York City on subjects relating to the properties and testing of engineering materials.

In order that as many as possible of the technical papers and committee reports can be preprinted in advance of the meeting, it is desirable that the program be developed early. Committee E-6 on Papers and Publications has fixed February 15 as the limiting date for receipt of offers but members who may be considering the submission of a paper are urged to send their offers to A.S.T.M. headquarters *as soon as possible.* Suitable blanks which should be used in sending the necessary information with respect to the offer of a paper can be obtained from Society headquarters. Each offer must be accompanied by a summary of the proposed paper in such detail that its scope is clear and also to point out features that in the author's opinion make the paper a desirable one for presentation and discussion.

Invitations to submit papers are not limited to A.S.T.M. members, many outstanding technical contributions to our *Proceedings* having been made by men who were not affiliated with the Society.

The Committee on Papers and Publications in its review of the papers offered endeavors to develop a balanced technical program. The committee welcomes suggestions of pertinent subjects from members who may not wish to offer papers.

XII. Long-Time Society Committee Members

Twelfth in the Series of Notes on Long-Time Members

CONTINUING the series of notes on the work of long-time A.S.T.M. members, there are given below outlines of the outstanding activities of three members. In general the men included in this series have been affiliated with the Society for 25 years or more and have taken an active part in committee and other Society work. No definite sequence is being followed in these articles.

J. M. DARKE, Engineer, Materials Testing Laboratory, River Works, General Electric Co., West Lynn, Mass., after a period of employment in the Testing Laboratory of the Thomson-Houston Co. (which later joined with the Edison Company of Schenectady to form the General Electric Co.) became interested in chemistry and transferred to the Chemical Laboratory Branch. His practical training in chemistry

A. H. Sabin J. M. Darke Enrique Touceda

was supplemented by courses at Lowell Institute in Boston. He has been engaged in laboratory work for the General Electric Co. for a period of 44 years, most of which time he has been Engineer of the Materials Testing Laboratory.

A member of A.S.T.M. since 1909 as the representative of the River Works, General Electric Co., he has been especially active in the work of Committee A-1 on Steel. He has been a member of this committee since 1914 and served as chairman of the subcommittee on tool steel for 14 years. He headed the subcommittee on sheet steel and steel sheets for 12 years. Other standing committees of which he is a member include B-2 on Non-Ferrous Metals and Alloys and B-6 on Die-Cast Metals and Alloys.

Mr. Darke is one of the founder members of the American Foundrymen's Assn. and he was one of those at the 1935 meeting in Philadelphia who had attended the first A.F.A. meeting in Philadelphia in 1896. A member of the American Society for Metals, he served as chairman of the Boston Chapter in 1935.

A. H. SABIN, following his graduation from Bowdoin College with a B.S. degree, taught chemistry and physics at Ripon College and later was in the Chemistry Department at the University of Vermont. He received his Master of Science degree from Bowdoin in 1879, and his Doctor of Science degree in 1917. He was chemist for the state of Vermont and then became affiliated with Edward Smith & Co. in New York. Since 1910 he has been connected with the National Lead Co. as chemist.

He has served as lecturer in a number of leading schools, including New York University, University of Michigan, Purdue, and Massachusetts Institute of Technology.

His early work with Edward Smith & Co. included the application of a baked-on varnish enamel to some 28 miles of large steel water pipe in 1893-1895. This pipe is still in use, and was described in a paper which Doctor Sabin presented at the 1934 annual meeting of the Society. In the National Lead Co. he was active in developing the production of lead with a composition of 98 per cent PB_3O_4 which was not known before 1910.

Doctor Sabin has been affiliated with the Society since 1898, has been very active in the work of Committee D-1, and he has been a member of several D-1 committees. He is an original member of the Chemist Club of New York, and has served as Vice-President and director and member of the council of the American Chemical Society. He has written a number of books and many technical articles.

ENRIQUE TOUCEDA, Metallurgical Engineer, and Director, Touceda Chemical and Physical Laboratories, Albany, after his graduation from Rensselaer Polytechnic Institute with the degree of civil engineering in 1887, was Mechanical Engineer with the Troy Steel and Iron Co. and then Chief Chemist and Metallurgist. For many years he was Professor of Metallurgy at R.P.I. and is now Professor Emeritus and Consultant to the Department of Metallurgical Engineering.

Professor Touceda has been a member of A.S.T.M. since 1903. In that year Committee A-3 on Cast Iron was organized and he has held membership on this committee from the beginning. A member of Committee A-7 on Malleable Iron Castings since its formation in 1918, he served as secretary until 1936. As a member of the special committee on the Symposium on Malleable Iron Castings, he took a leading part in soliciting and preparing for publication the valuable data included in this symposium which was published jointly with the American Foundrymen's Assn.

He was awarded the John A. Penton Medal of the A.F.A. and is a life member of this association. He is a member of numerous engineering and technical societies, including the Society of Professional Engineers and the Technical Association of the Pulp and Paper Industry, and is an honorary member of the Institute of British Foundrymen.

Canadian Engineers' Semicentennial

THE Engineering Institute of Canada (Headquarters, 2050 Mansfield St., Montreal) is planning to celebrate its fiftieth anniversary at a semicentennial meeting to be opened in Montreal on June 15, 1937. A.S.T.M. members have been invited to attend the meeting.

The Institute, which was organized in 1889 as the Canadian Society of Civil Engineers, now takes care of the professional interests of engineers of all branches of the profession. There are some 4500 members, including over 400 outside of Canada.

It is the desire of the Institute that the anniversary meeting may be the means of bringing about closer acquaintances between engineers in the United States and Canada. The principal functions of the meeting are to be in the Windsor Hotel, June 15 to 17, inclusive.

Methods of Analyzing Industrial Waters

FOUR Proposed Methods of Analysis of Industrial Waters covering procedures for the determination of the sulfate, hydroxide, carbonate and orthophosphate ions when present in industrial waters, have been prepared under the jurisdiction of A.S.T.M. Committee D-19 on Water for Industrial Uses and are being published as information.

Subcommittee IV on Methods of Analysis (C. H. Fellows, past chairman; J. R. McDermet, present chairman) and the Editorial Subcommittee II (E. P. Partridge, chairman) of Committee D-19 cooperated in the organization and editing of these procedures, which are based upon methods developed by Subcommittee 8 of the Joint Research Committee on Boiler Feed Water Studies. Supporting research data for most of the methods were obtained in an investigation under the direction of Subcommittee 8, which has been described in a research publication of the American Society of Mechanical Engineers, as indicated by the references attached to the respective methods.

Copies of the 25-page pamphlet containing the proposed methods can be obtained by members at the price of 25 cents each. The price to non-members is 35 cents per copy.

If experience with any of these proposed methods develops suggestions for their improvement, Committee D-19 would appreciate being advised concerning them. Comments are solicited and should be addressed to the Society Headquarters.

Work on Radio and Lamp Materials Discussed

COMMITTEE B-4 on Electrical-Heating, Electrical-Resistance and Electric-Furnace Alloys held a two-day series of meetings in Cleveland, September 28 and 29, with a good attendance. At the meeting on Tuesday at which consideration was given to extending the scope of Committee B-4 to include methods of tests and specifications for metallic materials for radio tubes and incandescent lamps, a number of visitors representing companies interested in this work were present. The desirability of developing standard test methods and specifications for these materials was brought to the attention of the Society through the Radio Manufacturers' Assn. There was extended discussion of the various problems in connection with the work and action was taken to request approval by the A.S.T.M. Executive Committee of the expanded scope.

During the meeting, a number of materials used for radio tubes and incandescent lamp parts were listed, their form as fabricated and their various applications. Some of the properties for which the metals are or might be tested were outlined.

A number of subcommittees submitted reports on the very active program of work that is being carried on. Various tests are being conducted by a group working on life tests and inter-laboratory test work is under way on electrical tests. The subcommittee on mechanical tests is planning to have further comparative test work on wires.

Drafts of appendices covering cast specimens for short-time tension and creep test specimens which Committee B-4 is proposing for addition to the high-temperature tension test methods were reviewed at the meeting and certain modifications made.

Meeting of Committee on Cast Iron

AT its meeting in Cleveland on October 20, Committee A-3 on Cast Iron received the reports of a number of its subcommittees and gave consideration to various phases of its work. The desirability of adding deflection values in the Standard Specifications for Gray-Iron Castings (A 48 – 36) was discussed and further consideration is to be given to this. Dr. J. T. Mackenzie, chairman of the subcommittee on impact testing, reported that sufficient work had been done in the field of drop impact tests to warrant sending information on the tests so that other members who may be interested may carry out investigations along the same lines. When sufficient work has been done on this type of test, consideration may be given to the development of a tentative standard giving recommended requirements.

Refractories Committee Meets

COMMITTEE C-8 on Refractories held its fifty-fourth meeting on October 9 at Battelle Memorial Institute, Columbus, Ohio. Several of the newly organized subcommittees reported on the progress being made in their work. It was indicated at the meeting that consideration is being given to the preparation of a definition pertaining to three grades of diaspore brick which are classified by alumina content and Pyometric Cone Equivalent. The research committee reported on the study being conducted to learn the effect of oxidizing and reducing atmosphere within the preheat furnace used in conducting the panel spalling test, and the findings will be reported later.

The committee expects to submit at the next meeting results of studies on the development of a procedure for the measurement of warpage of refractory shapes. The method proposed is a simple one and records the amount of warpage numerically.

The committee working on the industrial survey pertaining to the glass industry is nearing completion of its work and hopes to submit the final report in time for the next meeting of the committee.

It was indicated that Committee C-8 plans to bring up to date the compilation of A.S.T.M. Standards on Refractory Materials for the contemplated 1937 edition.

One of the important subjects discussed at the meeting was the cooperative work being carried on with the Bureau of Standards on the study of test methods for the determination of thermal conductivity of refractories and insulating brick. At the present time a water calorimeter for use at the lower temperatures is being perfected.

There was presented an outline of the work in progress in connection with the revisions of the procedures for chemical analysis of refractory materials in order to incorporate the more refined methods and at the same time to have separate procedures for different types of refractory materials.

At the meeting there was discussion of work which had been done in comparing the A.S.T.M. method of determining the specific gravity of refractory materials with a revised procedure and since comparable results were not obtained, the subject is to be studied further by the committee on research. Consideration is to be given also to the preparation of standard methods for the calculation of heat loss through furnace walls.

A. S. T. M. Textile Committee Meets in New York

Important Progress Made in Committee Work

At the very successful series of meetings held by A.S.T.M. Committee D-13 on Textile Materials in New York City from October 14 to 16 inclusive, there was a registration of 104 committee members and guests, this figure exceeding that of any previous meeting. In addition to the meeting of the main committee, twenty of the twenty-five D-13 subcommittees met, all of these being well attended.

At the session devoted to presentation of the technical papers the following were presented:

The Testing of Rayon Yarns—A. Stuart Hunter, Rayon Dept., E. I. du Pont de Nemours & Co.

Rayon as the Consumer Views It—Ephraim Freedman, R. H. Macy & Co.

Stereo-radiography of Textiles—H. F. Sherwood, Bausch & Lomb Optical Co.

The Use of Statistical Methods in the Control of Quality of Materials—Dean Harvey, Westinghouse Electric and Manufacturing Co.

Specific illustrations of the use of statistical methods in the control of quality of materials were presented by Messrs. G. E. Hopkins, Bigelow-Sanford Carpet Co.; A. G. Scroggie, Du Pont Rayon Co.; L. R. Jones, Mohawk Carpet Co.; and O. P. Beckwith, Alexander Smith & Sons Carpet Co.

In addition to these papers, C. M. Conrad, U. S. Department of Agriculture, presented one on the subject of "Application of Certain Chemical Methods to the Determination of Quality of Raw Cotton," at the meeting of the Cotton Section of Subcommittee A-1 on Cotton and Its Products.

The annual D-13 banquet was attended by some 85 members and visitors. The guest speaker was Dr. Harry S. Rogers, President, The Polytechnic Institute of Brooklyn, whose topic was "The Functional Relationship of Research to Industry." Brief remarks were made by President Eames of the Lowell Textile Institute, and Dean Willis of the Textile School of Clemson College. Two motion pictures were presented at the banquet.

RECOMMENDATIONS ON STANDARDS

Considerable progress was made at the meetings in carrying forward the standardization work of the committee and a number of recommendations were approved for submission to letter ballot of the committee. Three existing standards covering Methods of Testing and Tolerances for Tire Fabrics Other than Cord Fabrics (D 122 - 33), Specifications and Methods of Test for Chafer Tire Fabrics (D 316 - 34), and Specifications and Methods of Test for Enameling Duck for the Tire Industry (D 336 - 33) are to be consolidated into one standard in which references will be made to the General Methods of Testing Woven Textile Fabrics (D 39 - 36) for test methods. Revisions of the existing Tentative Methods of Testing and Tolerances for Rayon (D 258 - 35 T) are to be developed, the more important changes involving the following: definitions, reeling of skeins, tolerances for atmospheric conditions, and length of specimen for single end testing.

In the Tentative Methods for the Identification of Fibers in Textiles and for the Quantitative Analysis of Textiles (D 276 - 35 T) the sulfuric acid method for analysis of cotton-wool mixtures is to be added. Methods for determining bow and twist of yarns and fabrics will be added to the General Methods of Testing Woven Textile Fabrics (D 39 - 36), and another change will involve revisions of raveled-strip method for breaking strength to limit its applicability to fabrics containing 50 or more yarns per inch.

The Standard Specifications for Textile Testing Machines (D 76 - 36) are to be amplified by inclusion of requirements for flatness and parallelism of flat grip jaws. A number of editorial changes, modifications in certain record forms, and revision of the test for immature fibers are to be incorporated in the Tentative General Methods of Test for Properties of Cotton Fibers (D 414 - 35 T).

WORK UNDER WAY

The committee has a very active program of research and standardization work under way among which are the following items:

1. Broadening the scope of the Tentative Method of Test for Fastness of Dyed or Printed Silk or Rayon Fabrics to Laundering or Domestic Washing (D 436 - 36 T) to include woolen fabrics.
2. Method of test for fastness of colored textiles to sunlight and for evaluating fastness to light by the Fadeometer Test.
3. Test method for evaluation of water-proofness or shower-proofness of treated textile fabrics.
4. Method for estimation of size in cotton fabrics.
5. Microscopical test method for analysis of mixtures of animal fibers.
6. Rate of application of load in constant specimen-rate-of-load testing machines.
7. Calibration of horizontal testing machines.
8. Methods of test and specification requirements for tuft bind and tuft length in pile floor coverings.
9. Methods of testing wear and fading of pile floor coverings.
10. Test methods and specifications for woolen and worsted fabrics.
11. Tolerance for temperature in the definition of standard conditions.
12. Specifications for wool top.
13. Specifications for fineness of raw wool and of wool in finished fabrics.
14. Development of tests for wrinkling, bulging, stretching and shrinking of spun rayon fabrics.
15. Method of test for shrinkage of dress fabrics in home laundering.
16. Development of a method of test for evenness in cotton yarns.
17. Study of the methods of testing heavily plied yarns.

NEW SUBCOMMITTEE ACTIVITIES

During the meetings two new subcommittees of Committee D-13 were organized and inaugurated their work. Subcommittee A-5 on Bast Fibers and Their Products inaugurated a preliminary study of definitions, influence of length of specimen and speed of testing machine on breaking strength of yarns, survey of present testing methods, fiber length of sliver and numbering of jute yarn.

New Subcommittee A-6 on Household and Garment Fabrics organized and selected as its first project the development of a system of classification and nomenclature of fabrics

purchased by the ultimate consumer for household use. This is to be accompanied by the establishment of definitions, based on specifications, for some specific household fabrics, starting with toweling and sheeting.

The following appointments were announced at the meeting: A. R. Howe, Ludlow Manufacturing Associates, as Chairman of Subcommittee A-5 on Bast Fibers and Their Products; and F. S. Mapes, General Electric Co., as acting-chairman of Subcommittee A-4 on Asbestos and Its Textile Products.

The next meetings of the committee are to be held in Providence, March 10 to 12, and this meeting will be featured by a technical symposium on atmospheric conditions as related to conditioning of materials for test.

Meeting on Coal Classification

A SERIES of meetings of the Technical Committee on Coal Classification, which is a subdivision of the Sectional Committee on Classification of Coals, functioning under A.S.A. procedure, with the American Society for Testing Materials as sponsor, were held in Pittsburgh on October 19 and 20. The Subcommittee on Origin and Composition of Coal and Methods of Analysis, after several years of intensive study, reported that the present knowledge of types of coal does not permit the preparation, at this time, of specifications for classification of coals based on the origin of plant components comprising various types or varieties of coal such as common bright coal, splint coal, or cannel coal. The Technical Committee agreed that it would be desirable to have definitions of coal varieties, other than those of rank and grade, such varieties to be defined for commercial purposes, and will recommend that such definitions be prepared by the Technical Committee on Nomenclature.

The Subcommittee on Boundary Lines for Coal Classification reported progress in a statistical study of analyses of coals of unusual physical and chemical characteristics occurring in the high volatile bituminous and sub-bituminous ranks, with a view of preparing a suitable note for inclusion in the Tentative Specifications for Classification of Coals by Rank (A.S.T.M. Designation D 388 – 36 T), indicating that the specifications do not apply to such unusual coals. It was pointed out that these coals do not occur abundantly, are of relatively minor commercial importance, and can be excluded from the system of classification by rank by reference to their fixed carbon and calorific values.

The Subcommittee on Correlation of Scientific Classification with Use Classification reported completion of charts giving factors recommended for consideration in the selection of coal for various uses. These charts give the weighted opinions of many authorities concerning the relative importance of various chemical and physical properties in selection of coal for specific uses. Plans were made to make these charts available by publication in the near future as an information report of the subcommittee.

The Subcommittee on Defining Coal Sizes and Friability recommended revisions of the Tentative Specifications for Classification of Coals by Grade (A.S.T.M. Designation D 389 – 34 T) to include designating the size of coal in accordance with the method as given in the Tentative Method for Designating the Size of Coal from its Screen Analysis (A.S.T.M. Designation D 431 – 36 T.) This recommendation was approved by the Technical Committee.

Committee on Gaseous Fuels Meets

COMMITTEE D-3 on Gaseous Fuels and six of its subcommittees held well-attended meetings at Atlantic City, on October 26 and 27, 1936. These meetings were held in conjunction with the annual convention of the American Gas Association and therefore gave a special opportunity for attendance of those members who are associated with the manufactured and natural gas industries.

Subcommittees relating to the collection of gaseous samples, measurement of gaseous samples, determination of calorific value, determination of specific gravity and density, determination of water vapor content, and complete analysis or chemical composition of gaseous fuels, held meetings on Monday. The results of the initial assignments of work made at the Pittsburgh meeting, held last March, were discussed and more definite and detailed plans of procedure were adopted for further work of the various subcommittees. Some apparent difficulties due to difference in practice in the natural gas and manufactured gas industries were considered and material progress was made in obtaining a better mutual understanding of the procedures followed in these two great branches of the gas industry.

The present officers were re-elected. They are: Chairman, A. C. Fieldner, Chief, Technologic Branch, U. S. Bureau of Mines, Washington, D. C.; Vice Chairman, R. B. Harper, Vice President, The Peoples Gas Light & Coke Co., Chicago; Secretary, R. M. Conner, Director, American Gas Association Testing Laboratories, Cleveland.

The following were elected members of the Advisory Committee: G. G. Oberfell, Vice President in Charge of Research, Phillips Petroleum Co.; A. W. Gauger, Director, Mineral Industries Research, Pennsylvania State College; J. V. Freeman, Technical Assistant, U. S. Steel Corp.; and Martin Shepherd, National Bureau of Standards.

At a meeting of the Advisory Committee, the vacancy created by the resignation of W. P. Yant as chairman of Subcommittee V on Determination of Impurities of Gaseous Fuels was filled by the advancement of E. F. Pohlmann, Chief Testing Engineer, The Peoples Gas Light & Coke Co., Chicago, former vice chairman of the subcommittee.

Dudley Medal Committee Appointed

THE Committee on Award of the Charles B. Dudley Medal has been appointed by the Executive Committee and consists of the following members:

W. H. Fulweiler, *Chairman*, Consulting Chemist, Wallingford, Pa.
P. G. McVetty, Mechanical Engineer, Research Labs., Westinghouse Electric and Manufacturing Co.
H. S. Mattimore, Engineer of Materials, Pennsylvania State Highway Dept.

This committee will review the eligible technical papers presented at the 1936 annual meeting in Atlantic City and select the one of outstanding merit which constitutes an original contribution on research in engineering materials. The Medal will be awarded at the Fortieth Annual Meeting at The Waldorf-Astoria, June 28-July 2, 1937. This Medal was established by voluntary subscriptions from members of the Society as a means of stimulating research, recognizing meritorious contributions to the *Proceedings*, and in commemoration of the first President of the Society whose leadership has profoundly influenced A.S.T.M. development.

Committee on Brick Holds Meeting in Washington

At the meeting in Washington, on November 16, of A.S.T.M. Committee C-3 on Brick, a new subcommittee was established to prepare standard methods of test for freezing and thawing tests on brick and important revisions were discussed in the Tentative Specifications for Building Brick (Made from Clay or Shale) (C 62—36 T). The revised specifications will provide for the elimination of strength grading and give a classification based upon weather resistance only.

The meeting took action to propose the withdrawal of the existing Standard Methods of Testing Brick (Compression, Flexure, Absorption) (C 67—31) and the adoption as standard of the Tentative Specifications C 67—36 T. The proposed new standard establishes a procedure for estimating the expected resistance of brick to frost action.

The subcommittee organization of Committee C-3 was changed and only the subcommittees on specific materials and an advisory subcommittee were retained.

Members of the committee and a number of guests made their first inspection of the new long-time exposure tests of brick and masonry being conducted by the National Bureau of Standards.

J. W. McBurney, Senior Ceramic Chemist, National Bureau of Standards, chairman of Committee C-3, and J. W. Whittemore, Professor of Ceramic Engineering, Virginia Polytechnic Institute, secretary, were in charge of the meeting.

Tests of Electroplated Coatings on Non-Ferrous Metals

An extensive investigation of the protective value of various electroplated coatings applied to non-ferrous metals is being carried out by a Joint Committee comprising representatives of the American Electro-Platers' Society and A.S.T.M. A large number of specimens have been placed on racks at the six test sites and periodic inspections of the various specimens have been scheduled.

The personnel of the Joint Committee is as follows:

W. Blum, *Chairman*, National Bureau of Standards, Washington, D. C.

Representing A.E.S.

B. H. McGar, Chase Companies, Waterbury, Conn.
C. F. Nixon, Ternstedt Division, General Motors Corp., Detroit, Mich.
Joseph Sexton, Sargent & Co., New Haven, Conn.
W. M. Phillips, General Motors Corp., Detroit, Mich.
W. A. Wesley, International Nickel Co., Bayonne, N. J.

Representing A.S.T.M.

C. E. Heussner, Chrysler Corp., Detroit, Mich.
C. L. Hippensteel, Bell Telephone Labs., New York City
J. C. Fox, Doehler Die Casting Co., Toledo, Ohio
J. R. Freeman, Jr., American Brass Co., Waterbury, Conn.
Sam Tour, Lucius Pitkin, Inc., 47 Fulton St., New York City

A description of the general plan of the tests and details of the base metals and electrodeposited coatings are given in the report of the Joint Committee presented at the 1936 A.S.T.M. annual meeting and published in the current *Proceedings*.

Numerous Standards Approved by A.S.A.

During 1936 revisions made in several standard and tentative specifications, which had been approved as American Standard or American Tentative Standard by the American Standards Association, were given A.S.A. approval and in addition a number of A.S.T.M. specifications and test methods have received favorable action by A.S.A. procedure, for the first time. A list of the A.S.T.M. standards approved by the American Standards Association during 1936 follows.

Standards	Designation A.S.T.M.	A.S.A.
Specifications for:		
Billet-Steel Concrete Reinforcement Bars	A 15 - 35	A 50.1 - 1936
Rail-Steel Concrete Reinforcement Bars	A 16 - 35	A 50.2 - 1936
Cold-Drawn Steel Wire for Concrete Reinforcement	A 82 - 34	A 50.3 - 1936
Steel for Bridges	A 7 - 36	G 18 - 1936
Steel for Buildings	A 9 - 36	G 19 - 1936
Mild Steel Plates	A 10 - 34	G 20 - 1936
Structural Rivet Steel	A 141 - 36	G 21 - 1936
Methods of:		
Test for Cubic Foot Weight of Crushed Bituminous Coal	D 291 - 29	K 20.1 - 1936
Test for Cubic Foot Weight of Coke	D 292 - 29	K 20.2 - 1936
Tumbler Test for Coke	D 294 - 29	K 20.3 - 1936
Shatter Test for Coke	D 141 - 23	K 20.4 - 1936
Test for Volume of Cell Space of Lump Coke	D 167 - 24	K 20.5 - 1936
Test for Determination of Toluol Insoluble Matter in Rosin (Chiefly Sand, Chips, Dirt and Bark)	D 269 - 30	K 21.1 - 1936
Recommended Practice for:		
Thermal Analysis of Steel	E 14 - 33	Z 30.2 - 1936
American Tentative Standard		
Tentative Specifications for Classification of Coals by Rank	D 388 - 36 T	M 20.1 - 1936
Tentative Specifications for Classification of Coals by Grade	D 389 - 34 T	M 20.2 - 1936

The total number of A.S.T.M. specifications and methods which have been approved by the A.S.A. is now 118.

Theory of Properties of Metals

A publication entitled "The Theory of the Properties of Metals and Alloys" by N. F. Mott and F. Jones, University of Bristol, England, has recently been issued. It has been the authors' aim to give as complete an account as possible of the present state of the electron theory of metals and of its success in accounting for the observed properties of metals and alloys. Only in the last three years has it become possible to make quantitative calculations of the metallic bond even for the simplest metals, or to make detailed predictions of crystal structure and of the phase equilibrium diagrams of alloys; these developments are fully described. In addition the subject matter includes an account of the specific heats and thermal expansion of solids; of the optical properties and color of metals and alloys; and of their magnetic properties and electrical conductivity.

Special attention is paid to metals with abnormal properties, such as nickel, palladium and their alloys, and bismuth and γ-brass. The relation between their crystal structures and their magnetic, electrical, and optical properties is pointed out and accounted for in terms of the theory. Copies of this 326-page volume in cloth binding can be obtained at $8 per copy from the Oxford University Press, 114 Fifth Ave., New York City.

Publications Issued

A NUMBER of publications scheduled to be issued during the year have been completed and distributed. These include four compilations of standards which are sponsored by Society committees as follows:

	Standards	Pages	Members' Price
Petroleum Products and Lubricants	63	372	$1.50
Electrical Insulating Materials	35	329	1.50
Textile Materials	42	295	1.25
Coal and Coke	24	143	1.00

In addition to these special compilations, the 1936 Edgar Marburg Lecture on "Developing American Glass" has been published and an Abridged Viscosity-Temperature Chart has been published for the first time. This chart was printed on the same stock as the previously issued viscosity-temperature chart but is letter size—8½ by 11 in. It covers a temperature range of −10 to +300 F. and a viscosity range of 37 to 100,000 Saybolt Universal seconds. This chart has been very favorably received and a large quantity has been distributed. It is available in pads of 50 sheets at $2.00 per pad or three pads for $5.00.

The Symposium on High-Strength Constructional Metals, held as the technical feature of the Pittsburgh Regional Meeting, was published early in the Fall and copies have been distributed to members and others who ordered them. Because of the extensive chemical, physical, metallurgical and related data on the various alloys covered in the Symposium, it is of widespread interest.

The editing of the Symposium on Radiography and X-ray Diffraction Methods is nearing completion and it is expected this publication will be available for distribution late in December.

Patent Note Relating to Standards

ON THE A.S.T.M. specifications covering materials or processes known or believed to be patented, there has been a note, which by recent action of the Executive Committee, has been modified slightly to read as follows:

"By publication of these specifications, the American Society for Testing Materials does not undertake to insure anyone utilizing the specifications against liability for infringement of Letters Patent nor assume any such liability, and such publication should not be construed as a recommendation of any patented or proprietary application that may be involved."

Instead of appearing as a fine-type footnote at the bottom on the first page of the standard, it will hereafter appear immediately preceding the first section of the specifications, under the line in the title giving the date of issuance and adoption of the specifications.

It has been decided also to include the following note on the fly-leaf of the Books of Standards, Tentative Standards, the *Proceedings*, and the several special compilations of standards:

"Nothing contained in any publication of the American Society for Testing Materials is to be construed as granting any right, by implication or otherwise, for manufacture, sale or use in connection with any method, apparatus or product covered by Letters Patent, nor as insuring anyone against liability for infringement of Letters Patent."

Proceedings Will Be Sent to Members in January

SATISFACTORY progress is being made on the printing of the *Proceedings* of the 1936 annual meeting and it is expected that the two extensive volumes will be distributed to each member of the Society early in January. The *Proceedings* are being issued as in previous years in two parts, Part I covering committee reports and new tentative standards, while Part II gives the various technical papers.

Part I of the 1936 *Proceedings* will include the annual reports of some fifty A.S.T.M. standing committees and joint and sectional committees of which the Society is sponsor. These reports detail the standardization accomplishments of the committees and in numerous cases give detailed data on extensive research projects which many of the committees have under way.

A number of committee reports have papers appended describing work sponsored by the committee. In this category are the reports of the Joint Research Committee on Effect of Temperature, Committee C-9 on Concrete and Concrete Aggregates (four extensive papers appended), Committee D-8 on Bituminous Waterproofing and Roofing Materials, Committee B-6 on Die-Cast Metals and Alloys, and C-3 on Brick. Part I also includes the annual address by the president, H. S. Vassar, on the subject "The Testing of Non-Materials," report of the Executive Committee and the Summary of the Proceedings which details the actions taken at the annual meeting.

All of the proposed standards which were accepted for publication as tentative for the first time in 1936 are included in this part of the *Proceedings* and also given are all proposed revisions of standards.

In Part II of the 1936 *Proceedings* will appear the 49 technical papers presented at the annual meeting in Atlantic City. This volume includes the Edgar Marburg Lecture on "Developing American Glass" and the Symposium on the Limitations of Laboratory and Service Tests in Evaluating Rubber Products, consisting of five papers with discussion. It was not possible to preprint in advance of the meeting several papers and these will be published in the *Proceedings* for the first time. Included in this group is one of the most extensive papers yet presented at a Society annual meeting, on "Failure of Suspension Bridge Cable Wire" by Messrs. Swanger and Wohlgemuth of the National Bureau of Standards, this paper describing the comprehensive tests conducted to determine causes of the failure of the original cable wire used in the Mt. Hope Suspension Bridge. Another extensive paper which was not preprinted covers "Methods of Determining Gloss", which includes descriptions of about thirty instruments and discusses characteristics which are most significant from the standpoint of gloss of a large number of materials. Other papers which were not printed in advance cover impact bend testing of wire, effect of time on tensile properties of hard-drawn copper wire, rating the characteristics of fresh concrete, and spectrographic determination of magnesium in aluminum alloys.

A preliminary estimate of the number of pages in the *Proceedings* indicates that Part I will comprise some 1350 and Part II, about 850.

NEW MEMBERS TO NOVEMBER 30, 1936

The following 21 members were elected from October 16 to November 30, 1936:

Company Members (3)

HYGRADE SYLVANIA CORP., R. M. Bowie, Research Engineer, St. Marys, Pa.

INTERNATIONAL SILK GUILD, INC., R. D. Jenkins, Vice-President, 250 Fifth Ave., New York City.

MONSANTO CHEMICAL CO., K. R. Fox, Chemical Sales Engineer, 1700 S. Second St., St. Louis, Mo.

Individual and Other Members (17)

ALPERS, G. H., Chemist, Technical Dept., General Dyestuff Corp., 230 Fifth Ave., New York City.

ARGENTINA OBRAS SANITARIAS DE LA NACION, Laboratorio, Distrito Palermo, Avenida de los Ombues y Camino del Vivero, Buenos Aires, Argentina.

AUFDERHAAR, H. C., Metallurgist, Electro-Metallurgical Co., 230 N. Michigan Ave., Chicago, Ill.

BOWLER, W. L., Assistant Mechanical Engineer, The Pure Oil Co., 35 E. Wacker Drive, Chicago, Ill.

BUFFINGTON, R. M., Research Engineer, Engineering Dept., Servel, Inc., Evansville, Ind.

EDDY, JOSEPHINE F., Associate Professor of Home Economics, Alabama College, Montevallo, Ala.

FURMAN, N. HOWELL, Associate Professor, Princeton University, Frick Chemical Laboratory, Princeton, N. J.

MILLER, H. G., Engineer of Tests, Chicago, Milwaukee, St. Paul and Pacific Railroad Co., Test Dept., Milwaukee Shops, Milwaukee, Wis.

MOOSHEGRANZ, G. P., Chemist, Jenkins Brothers, 510 Main St., Bridgeport, Conn.

PERRIN, RENÉ J. L., Directeur General, Compagnie Francaise de Raffinage, 11 Rue du Dr. Lancereaux, Paris 8e, France.

POSTE, E. P., Consulting Chemical Engineer, 309 McCallie Ave., Chattanooga, Tenn.

RYAN, P. P., Chief Engineer, The Panelyte Corp., Enterprise Ave., Trenton, N. J.

SHUBROOKS, G. E., Chief Chemist and Metallurgist, Hamilton Coke Co., Columbia Ave., Lancaster, Pa.

STEINER, KALMAN, Chief Engineer, Consumers Petroleum Co., 1725 W. Thirty-first St., Chicago, Ill.

TOLMAN, L. M., In Charge of Laboratory and Research Dept., Wilson and Co., 4100 S. Ashland Ave., Chicago, Ill.

WESTERGAARD, H. M., Gordon McKay Professor of Civil Engineering, Harvard University, Pierce Hall, Cambridge, Mass.

WIEGAND, W. B., Director of Research, Columbian Carbon Co., 41 E. Forty-second St., New York City.

Junior Member (1)

WOLDT, T. O., Secretary, Globe Varnish Co., 7550 Loomis Boulevard, Chicago, Ill.

A Problem

A LABORATORY worker is assigned the task of making absorption tests on four bricks. The absorption of each brick is to be determined at the end of 5, 10 and 20 minutes. Experience has shown that 2½ minutes must be allowed for the drying and weighing of each specimen, so that the procedure for one specimen might be as follows: Immerse at 0 minutes; remove from water at 5 minutes; reimmerse at 7½ minutes; remove at 12½ minutes; and so on. Without conflict in the time schedule, what is the minimum time required to complete the tests from the first immersion of specimen No. 1 to the final weighing of specimen No. 4?

Members can check their answers by referring to Table III on page 6 of this BULLETIN. If 7 is subtracted from the total number of weight specimens of plain wire and the result divided by 10, the answer to this problem in minutes is given.

PERSONALS

» » » News items concerning the activities of our members will be welcomed for inclusion in this column.

W. E. CARSON, President, Riverton Lime & Stone Co., Inc., Riverton, Va., and former chairman of the State Commission on Conservation and Development, has been elected a fellow of the British Scientific and Industrial Research Society. The fellowship was awarded in recognition of valuable research work in ceramics, and more specifically in the field of lime, lime products and other cementitious materials.

J. D. MALCOLMSON, Director of Research, Robert Gair Co., Inc., New York City, has been appointed by the National Bureau of Standards, Department of Commerce, as chairman of the simplified practice committee to standardize boxboard calipers.

C. B. BRYANT, formerly Materials Engineer, Maryland State Roads Commission, Baltimore, Md., is now Engineer of Tests, Southern Railway System, Testing Lab., Alexandria, Va.

C. M. GAY, is now Associate Director, Franklin Institute Museum, Philadelphia, Pa. He was Professor of Architectural Construction, University of Pennsylvania.

G. A. SMITH, who was Research Engineer in Charge of Technical Research Section, Suburban Resettlement Administration, is now in the Engineering Design Section, National Park Service, U. S. Department of the Interior, Washington, D. C.

H. B. WISHART is now Metallurgist, Metallurgical Lab., Carnegie-Illinois Steel Corp., Gary, Ind. He was formerly Special Research Assistant in Engineering Materials, Materials Testing Lab., University of Illinois.

A. C. REED, formerly Consulting Chemist, Pittsburgh Testing Laboratory, Pittsburgh, Pa., is now Assistant Materials Engineer, Norfolk Navy Yard, Portsmouth, Va.

A. N. TALBOT, Professor Emeritus, University of Illinois, and Past-President and Honorary Member of A.S.T.M., has been awarded the 1937 John Fritz gold medal in recognition of his career as "molder of men, eminent consultant on engineering projects, leader of research and outstanding educator in civil engineering." The award of this medal is made annually by a board composed of 16 past-presidents of the four founder societies.

FRANK G. BREYER, of Singmaster & Breyer, metallurgists and chemical engineers, has been elected president of the Association of Consulting Chemists and Chemical Engineers. T. A. WRIGHT, Technical Director and Secretary, Lucius Pitkin, Inc., is the retiring president.

NECROLOGY

We announce with regret the death of the following members:

F. P. INGALLS, Chemist, 15 Jefferson St., Providence, R. I. Member since 1906. Mr. Ingalls had for many years been a member of Committee D-1 on Paint, Varnish, Lacquer, and Related Products and several of the D-1 subcommittees. He was a member of its Advisory Committee and chairman of the Subcommittee on Physical Properties of Materials.

R. H. JEFFERS, Metallurgical Engineer, Worth Steel Co., Claymont, Del. Mr. Jeffers, who was the Society representative of his company's membership, was a member of Committee A-1 on Steel and three of its subcommittees.

German Group Visits A.S.T.M. Headquarters

A GROUP of 32 German engineers and technologists interested in the manufacturing and testing of materials recently visited Society Headquarters as part of a study trip to America arranged by the German Society for Testing Materials. The party arrived in New York on the steamer Bremen, October 23, and spent Monday, October 26, in Philadelphia. At Society Headquarters there was a special display of the various A.S.T.M. publications and the work of the A.S.T.M. was explained to the group.

Before the party re-embarked for Germany on November 7, it visited Sparrows Point, Washington, Pittsburgh, Detroit, Niagara Falls and Schenectady, inspecting various industrial plants and other points of interest in each of these cities.

Christmas
How many old recollections, and how many dormant sympathies, Christmas-time awakens! . . . Happy, happy Christmas, that can win us back to the delusions of our childish days, recall to the old man the pleasures of his youth, and transport the traveler back to his own fireside and quiet home!
CHARLES DICKENS
Nation-wide Wire Tests Under Way
Symposia on Lubricants and on Corrosion Testing to Feature Regional Meeting
Book of Standards Issued
Several Committees Meet
DECEMBER, 1936
ASTM
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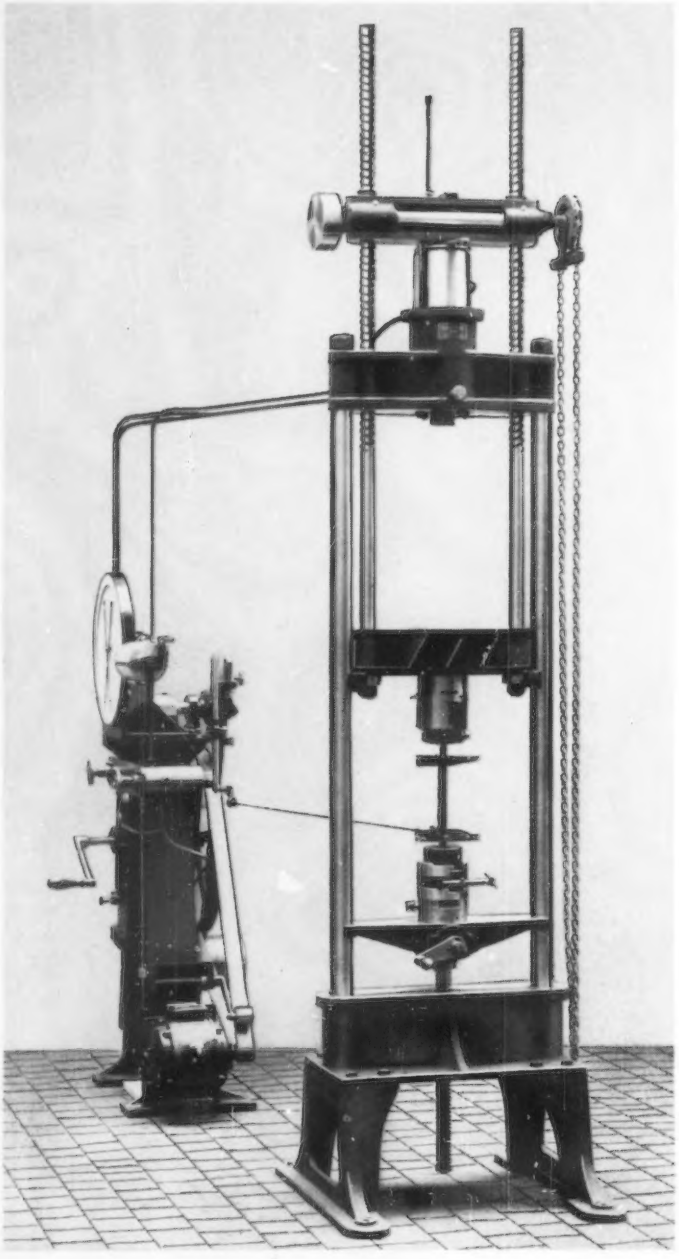

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Hydraulic, Universal
Testing Machines
with Extra-Wide Frames
available in
20,000, 30,000, 40,000,
50,000 lbs. Capacities

4 or 7 Ranges

Static and Dynamic

One of the *most popular* Amsler types in the lower capacity field, extensively used by the ferrous and non-ferrous sheet mills, wire plants, the electrical industries, etc.

Write for Leaflet No. 7c.

This type of Amsler tension and compression testing machines can be equipped for tests at elevated temperatures, for transverse and cold-bend tests, hardness tests, shearing tests, sheet metal cupping tests, and *fatigue* tests.

All these Amsler testing machines are constructed, for use in the standard, static tests, with a *"primary"* standard of load measurement, utilizing *directly* the fundamental, *invariable* units of weight and length. For use in dynamic (fatigue) tests, a special "secondary" standard, of Amsler's design, is provided for measuring the loads, which is much more rugged and satisfactory than a Bourdon gauge.

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Complete Line of Amsler Machines for All Static and Dynamic Tests of Materials

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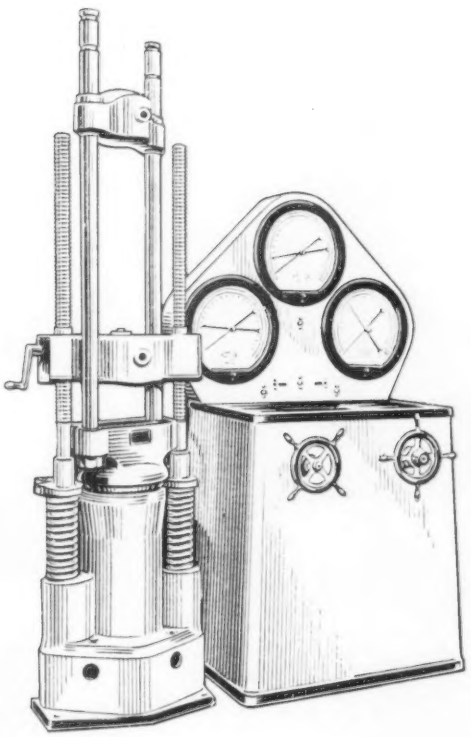
methods and equipment



The Hydraulic Testing Machine is rapidly replacing the old mechanical machine because of its inertia-less action, its self-indicating function, its flexibility and ease of operation.

It is the modern method of handling all physical testing problems—representing so great an improvement over previous means that it is not only replacing large numbers of old mechanical machines in the leading testing laboratories, but it is extending the use of testing machines among a great many people who never before have used them.

For instance—recent designs of self-contained, lightweight, rapidly operating testing machines which are fully protected by all forms of safety devices—which require no foundations—which can be moved about and plugged into any convenient electric socket—have created an entirely new conception of the testing machine's versatility, not only in research but in the control of routine mill operations.

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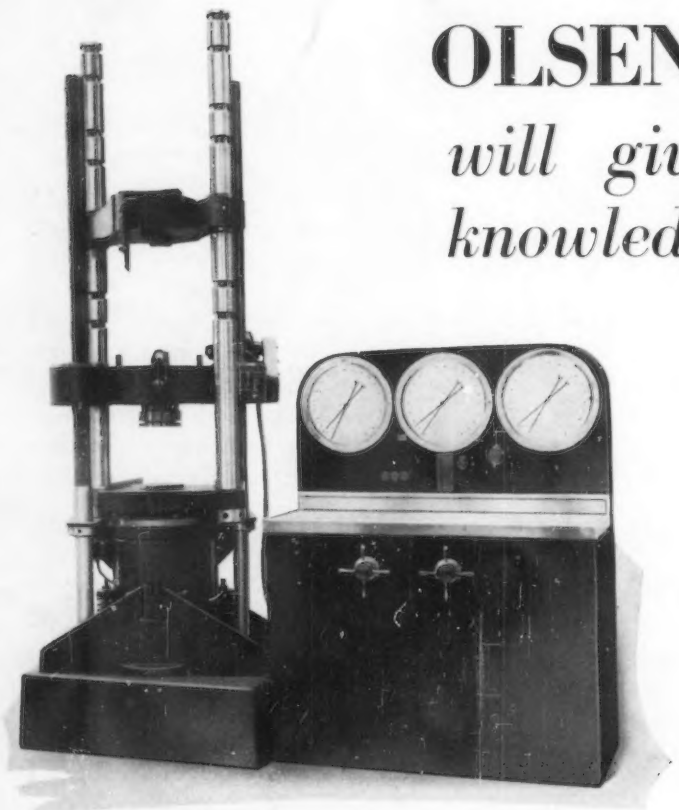

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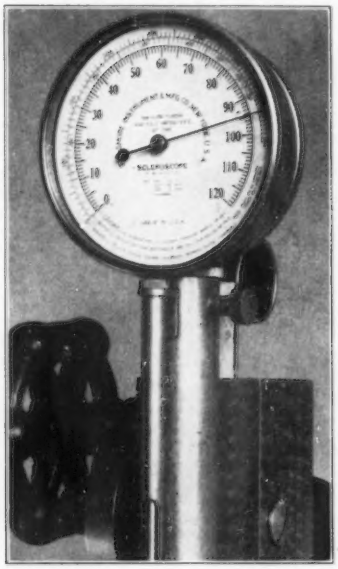

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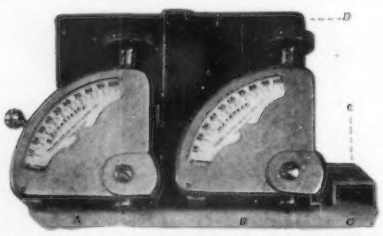

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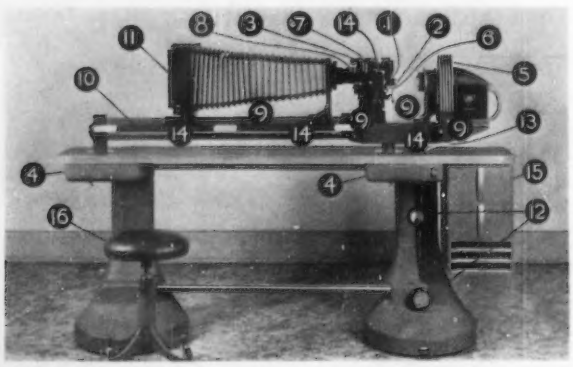

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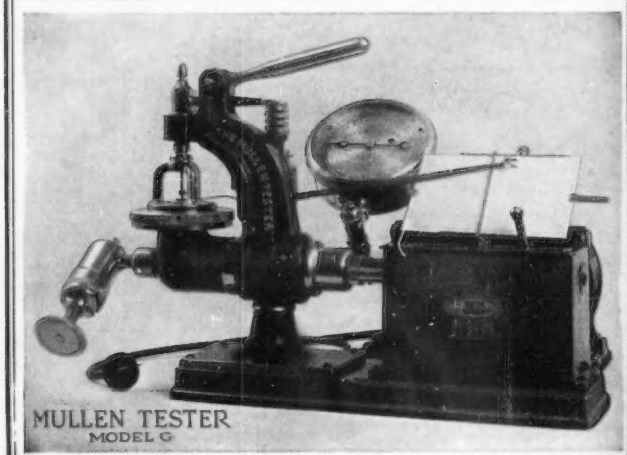

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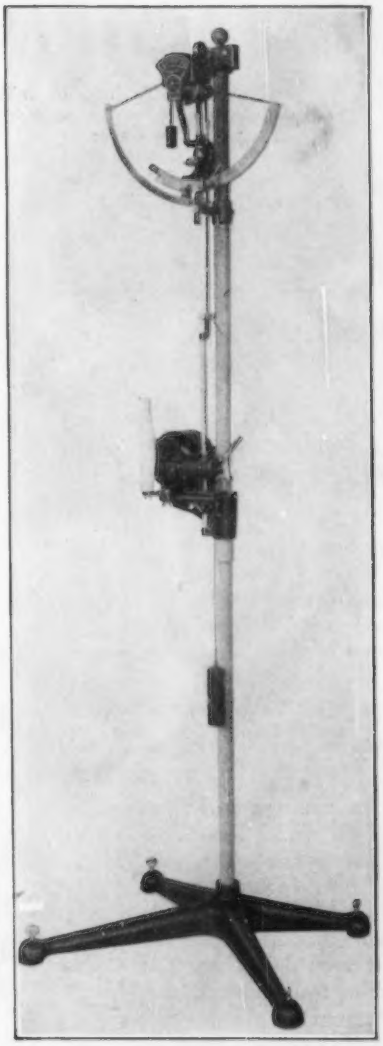

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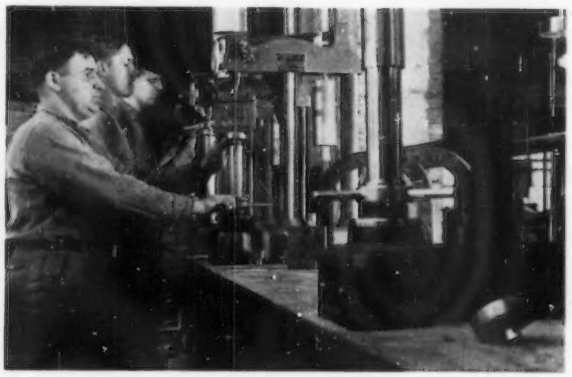

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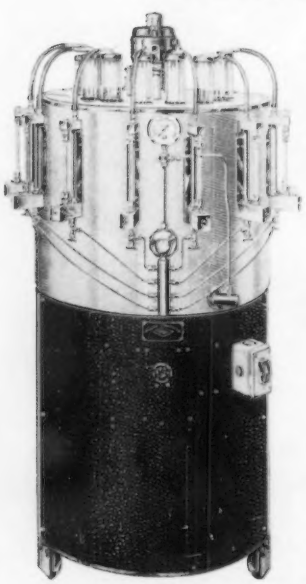

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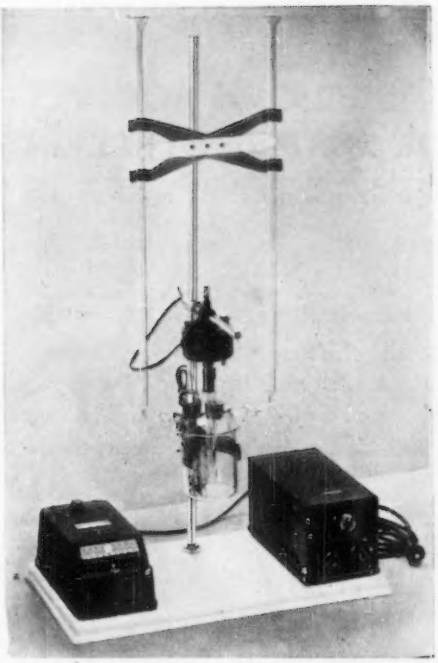

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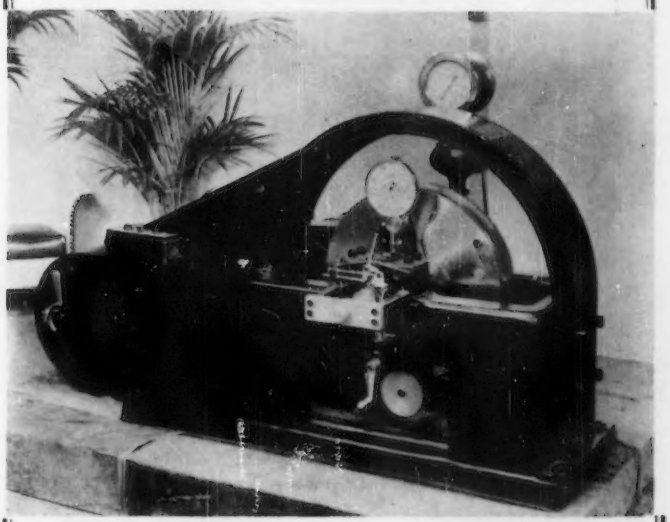

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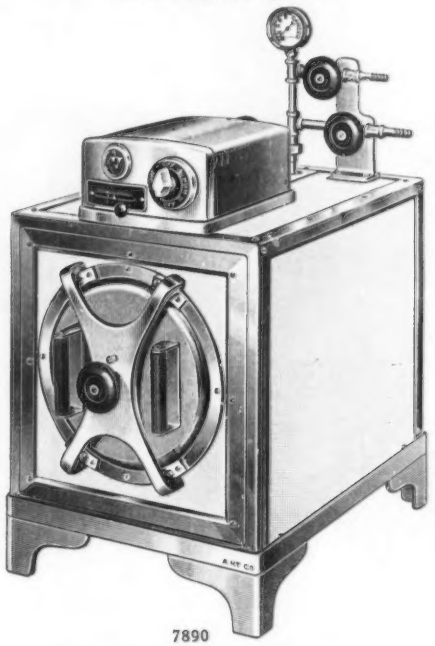

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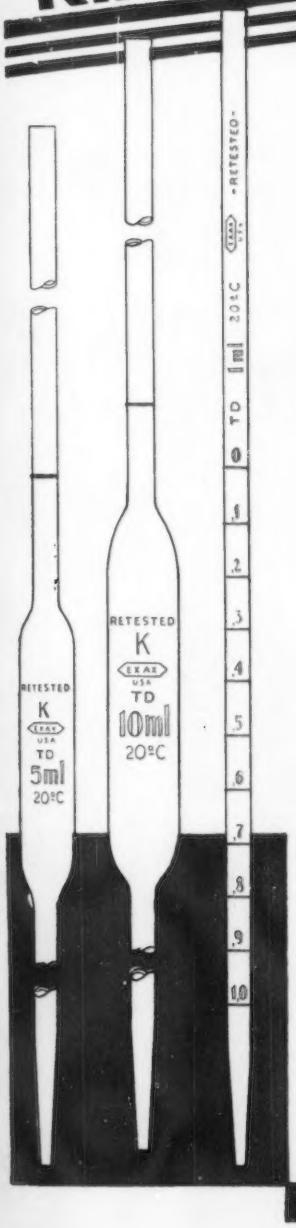

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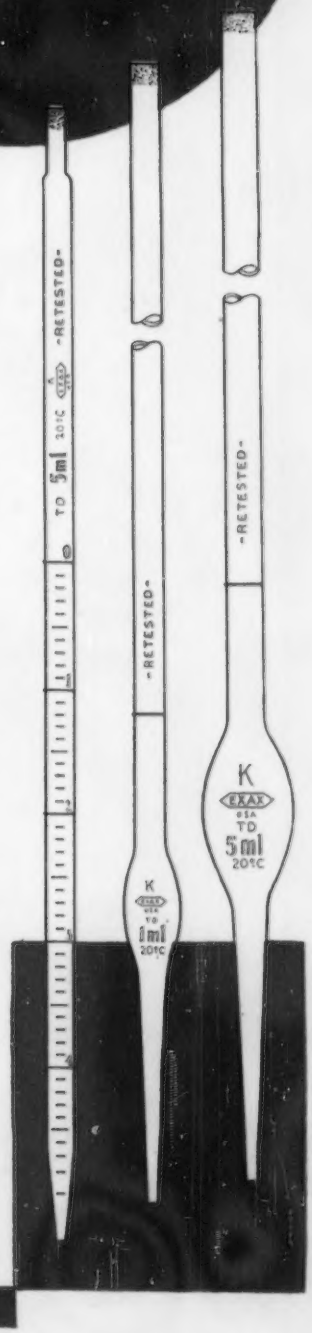
Volumetric and Ostwald Pipettes

Size	Tolerance	Size	Tolerance
1 ml	±0.012 ml	15 ml	±0.06 ml
2 ml	0.012 ml	20 ml	0.06 ml
3 ml	0.02 ml	25 ml	0.06 ml
4 ml	0.02 ml	50 ml	0.10 ml
5 ml	0.02 ml	100 ml	0.16 ml
10 ml	0.04 ml	200 ml	0.20 ml

Measuring and Serological Pipettes

Size	Tolerance	Size	Tolerance
1/10 ml	±0.005 ml	5 ml	±0.04 ml
2/10 ml	0.008 ml	10 ml	0.06 ml
1 ml	0.02 ml	25 ml	0.10 ml
2 ml	0.02 ml		



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